

The Mining Journal

AND ATMOSPHERIC RAILWAY GAZETTE,

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

No. 539.—Vol. XV.]

LONDON: SATURDAY, DECEMBER 20, 1845.

[PRICE 6D.]

LEAD MINE FOR SALE.—The BELGRAVE MINE, in DENBIGHSHIRE, distant about four miles from the town of Mold. TO BE SOLD, BY AUCTION, by Mr. C. W. LLOYD, at the Auction Mart, opposite the Bank of England, on Wednesday, January 1, 1846, at twelve o'clock, unless previously disposed of by private contract, the LEASE of the above MINE, with all the BUILDINGS, ENGINES, FITTINGS, and MACHINERY, and the STOCK of MATERIALS on the MINE. The working of this promising mine has ceased, and it is now OFFERED FOR SALE, in consequence of the death of the late proprietor. It is held under the Marquis of Westminster, at the per ton royalty, whilst the price of the lead is under £15 per ton, and 30s. per ton when the price of lead is above that sum, for a lease of twenty-one years, from 1st of May, 1846. An adit, or day level, is carried into the heart of the mine, at a depth of 100 fathoms; and a further depth of twenty fathoms below that has only yet been reached. Ample engine-power is erected upon the mine, and a small additional outlay only is required to bring the mine into a state of returns. The whole will be sold upon very moderate terms, and with immediate possession.

Reference may be made to Mr. John Taylor, Jun., Coed Dd, near Mold, who will give every information as to the state and prospects of the mine, and orders for its inspection, and who is authorised to treat, with parties desiring to purchase, or to Mr. C. W. LLOYD, auctioneer and estate agent, 28, Threadneedle-street.

LEAD MINES, AT STRONTIAN, ARGYLLSHIRE.—TO BE LET, for such a number of years as may be agreed upon, the well-known and valuable LEAD MINES, in the neighbourhood of Strontian. A level, or adit, which has been in progress for many years, has lately been driven into a mine of great extent and rich in ore, by which the water has been cleared out and a convenient access given to the works. These mines are in the vicinity of Loch Sunart. The neighbourhood is inhabited by a thriving and industrious population, of good moral character, among whom are many skilled miners. There is a smelting furnace and a crushing mill near the entrance of the level, and an abundant supply of water—with these advantages the work may be begun without delay. As few mines possess a more extensive field for successful operations, they are well worthy the consideration of capitalists, who are hereby invited to visit them. Offers will be received by Mr. James Milnes Riddell, Bart., and by William Kennedy, Esq., factor, Strontian, Strontian, Nov. 27, 1845.

TO LEAD OR COPPER SMELTERS, FOUNDERS, &c.—CARMARTHENSHIRE.—TO BE LET, with immediate possession, those very desirable PREMISES, known as the PENGOED LEAD WORKS, situated three miles from the town of Carmarthen, on the bank of the Llanelli and Llandovery Railway, with the navigable River Loughor flowing through them on the south; any extent of frontage for the deposit of slag would be included in the letting. The buildings, with steam-engines, bellows, and machinery, are very compact, and in excellent repair. For permission to view apply to F. L. Brown, Esq., solicitor, Llanelli, of whom all particulars as to terms, &c., may be obtained.

BY HER MAJESTY'S ROYAL LETTERS PATENT.
SMART'S ELLIPTICAL CONVEX METALLIC PADDLE.
FLOATS FOR PROPELLING STEAM-SHIPS.—The very great superiority of this invention over the common float, in all points, having been fully proved by its use on various steamers of from 50 to upwards of 300-horse power—and applications being made for licensing several iron steamers, from 70 to 300-horse power, the patentee confidently recommends it to the Government and the public generally.

Its superiority consists, in beauty of appearance, stability, durability, its property of greatly reducing vibration and undulation, its inexpensiveness, powerful agency in checking a ship in a chance of collision, and what is of the greatest consequence, giving an immense increase of speed. All these must have a powerful influence, not only on steam propellers, but, more especially on the minds of the steam-travelling public.

These floats can be easily applied to any wheel.

Applications for license (for which a fee of 10s. per horse-power is charged) to be made to the patentee, Mr. Robert Smart, 5, Grenville-place, Hotwells, Bristol, or his agents.

SIR WILLIAM BURNETT'S PATENT, FOR THE

PRESERVATION OF TIMBER, CANVAS, CORDAGE, COTTON, WOOLLEN, &c., FROM DECAY.

From Thomas GRAHAM, Esq., M.A., of University College, London, Professor of Chemistry.

"After making several experiments on wood prepared by the solution of Chloride of Zinc, for the purpose of preservation, and given the subject my best consideration, I have come to the following conclusions:—

"The wood appears to be fully and deeply penetrated by the metallic salt; I have found it in the centre of a large prepared paving block.

"The salt, although very soluble, does not leave the wood ashy when exposed to the weather, or buried in dry or damp earth. It does not come to the surface of the wood by efflorescence, like the crystalline salts. I have no doubt, indeed, that the greater part of the salt will remain in the wood for years, when employed for railway sleepers, or such purposes. This may be of material consequence when the wood is exposed to the attacks of insects—such as the white ant in India, which I believe would be repelled by the poisonous metallic salt.

"After being long immersed in cold water, or even boiled in water, thin chips of the prepared wood retain a considerable quantity of the salt, which I confirmed by Mr. Taylor's test; and observing that the wood can be permanently dyed from being charged with a metallic mordant.

"I have no doubt, from repeated observations made during several years, of the valuable preservative qualities of the solution of Chloride of Zinc, as applied in Sir W. Burnett's process; and would refer its beneficial action chiefly to the small quantity of the metallic salt which is permanently retained by the ligneous fibre in all circumstances of exposure. The extent of this application is a preventative of dry-rot, and similar sources of decay; it also prevents the tendency to decomposition of the assisted principles it contains, by entering into chemical combination with them.

(Signed) "THOMAS GRAHAM."

"University College, Oct. 25, 1845."

From Professors BRAND and COOPER.

"London, November 4, 1845.

"Sir.—We have this day again examined the specimens of canvas and wood prepared according to the specification of your patent, and which, in the month of April, 1844, we placed in a damp cellar, where they have remained up to this day, and which I confirmed by Mr. Taylor's test, and which we have the pleasure to express our favourable opinion expressed in our former report. The canvas remains simply protected from all fungus vegetation and rotteness, while a corresponding sample of the same piece, which had not been prepared by immersion in the solution of chloride of zinc, is entirely decayed, being mouldy, rotten, black, and in places resembles tinder.

"We have also lately compared the strength of a fibre of a piece of canvas which we prepared according to your specification, in October, 1844, with that of the fibre of the same canvas, and find that it has in that respect sustained no injury. We are, therefore, of opinion, that your process will not, after any lapse of time, tend to deteriorate the strength of the fibres of the substances in question.

"In regard to the several samples of different species of wood above adverted to, each of which was cut into two, one-half being immersed according to the directions of your specification with the dilute solution of chloride of zinc, while the other half was left in its original condition, we have also to make a favourable report, and to repeat our opinion of the efficacy of your process as a preventative of dry-rot, and similar sources of decay; the untreated specimens are manifestly symptoms of decay and mildew, while those which have been protected by your preparation are clean and sound.

(Signed) "WILLIAM THOMAS BRAND,

"JOHN THOMAS COOPER."

"To Sir William Burnett, K.C.B., F.R.S., &c. &c."

"Testimonials from numerous other parties may be obtained on application, personally, or by letter to the secretary, and specimens may be seen at the office, 53, King William-street, London-bridge."

CALEDONIAN RAILWAY.—NOTICE.—RESOLUTIONS

passed at an Extraordinary General Meeting of the shareholders, held within the Royal Hotel, Edinburgh, on Wednesday, the 5th day of November, 1845, (J. J. Hope, Esq., of Amandale, M.P., chairman of the company, in the chair):—

1. That the arrangements made by the directors for the acquisition of the Glasgow, Carlisle, and Caledonian Railway, and the leasing and working of the Caledonian and Southwestern Junction Railway, be approved of and confirmed.

2. That the arrangement made by the directors for amalgamating the Caledonian Junction Railway, including the Fettes and Gowan Railway, with the Caledonian Railway, be approved of and confirmed.

3. That this company shall undertake the several branches and stations and other works, specified in the notice calling this meeting, as the same are more fully detailed in the Parliamentary notices, or such of the said works, and with such modifications, as the directors may deem expedient.

4. That the original stock of the amalgamated Caledonian and Caledonian Junction Railway Companies, amounting to £2,500,000, be augmented by the sum of £1,250,000, to be raised by the creation of 50,000 new shares of £25 each; that these shares be allotted among the shareholders of the said amalgamated companies, in the proportion of one new share of £25 for each original share of £25; and that the directors be empowered to issue scrip, and take such other steps as may be necessary in reference to the creation and allotment of the said new shares.

5. That the directors be authorised to apply to Parliament for an act or acts for carrying into effect the several new works and other objects above referred to.

(Signed) J. J. HOPE JOHNSTONE, Chairman.

"In terms of the above resolutions, the directors hereby intimate that letters of allotment of the new stock will be issued to each of the shareholders as stand registered in the books of the amalgamated companies on the 1st of December next, and they will be required to pay the Parliamentary deposit of £3 10s. per share on or before the 20th of December, at the banks to be specified in the letters of allotment, and to sign the Parliamentary certificate and subscribers' agreement within ten days thereafter; and if any parties shall fail to pay the deposit, or to sign the deeds within the respective periods above stated, the right of such party to the new stock shall cease, and the same shall be disposed of by the directors without further notice.

By order of the board,

(Signed) J. J. HOPE JOHNSTONE, Chairman.

D. RANKINE, Secretary.

Caledonian Railway Office, 123, Prince's-street, Edinburgh, Nov. 6.

NATIONAL PROVINCIAL BANK OF ENGLAND.

112, Bishopsgate-street, London, Dec. 16, 1845.—The directors of the National Provincial Bank of England do hereby give Notice, that a DIVIDEND, at the rate of 5 per cent. per annum for the half-year ending the 31st of December, 1845, will be PAYABLE on the company's stock on and after the 16th of January next, when the dividend warrants will be obtained at the company's office, 112, Bishopsgate-street, or at the different branches.—The transfer books will be closed on and after Wednesday, the 16th inst., until the dividend becomes payable.

By order of the court of directors,

DAN. ROBERTSON, Agent and Manager.

NOTICE.—The court of directors of the ST. KATHARINE DOCK COMPANY do hereby give Notice, that a GENERAL HALF-YEARLY MEETING of the proprietors will be HELD at the Dock-house, Tower-hill, in the county of Middlesex, on Tuesday, the 30th day of January next, at Twelve o'clock at noon, for the purpose of declaring a dividend on the capital stock of the company for the half-year ending the 31st inst., when the accounts of receipt and expenditure of the said company for the year ending the 31st inst. will be laid before the proprietors, which accounts will be ready for examination, or inspection, by such proprietors on and after the 6th day of January next.—The books of the company will close on Wednesday, the 24th inst., and open on Saturday, the 31st of January next.

By order of the court,

ST. Katharine Dock-house, Dec. 16, 1845.

N.B.—The chair will be taken at One o'clock precisely.

NANT-A-RNELLE SILVER-LEAD MINES.

In 1000 shares, £2 each.—Deposit £2 per share.

Major Adair, United Service Club, Pall-mall.

G. Macqueen, Esq., 34, Great Corn-street, Russell-square.

W. W. Fell, Esq., Ullesthorpe, Leicester-shire.

John Wine, Esq., Temple-street, Bristol.

F. P. Conch, Esq., Nant-y-Brian House.

G. Pell, Esq., Welford, Northamptonshire.

(With power to add to their number.)

SECRETARY—F. Macquenn, Esq., 5, Great Winchester-street, Broad-street.

These mines, in the parish of Celycwin, county of Carmarthen, South Wales, are held on lease for twenty-one years, of David Lloyd-Harris, Esq., of Llandovery, and Edward Pryse Lloyd, Esq., of Glamorgan, near Llandovery, at the moderate royalty of one-sixteenth.

The neighbouring mine of Nant-y-Moyn, the property of Lord Cawdor, pays a royalty of one-eighth, which has returned a very large surplus, and is now working by Messrs. Michael Williams, of Scourie.

The lease also conveys to the lessees all water-courses and roads, with power to convert and direct them—all slate, stone, clay, &c., for the use of the mines, in every respect free of charge, whereby the value of the mines is increased as to the surface of the land below the deepest adit level; the ore crushed and made merchantable at a little expense, there being convenient water-power for every purpose.

There are six veins already discovered within the limits of the lease, and found to be rich in lead ore of the best quality, producing, from assays made, 69 per cent. of lead and eighteen ounces of silver to the ton of ore, and 60 per cent. of lead and nineteen ounces of silver to the ton of ore. These mines were wrought by the proprietors of the lead, who, although unequalled with mining, obtained from one of the veins near the top of the mountain, by very limited operations, upwards of nine tons of silver-lead ore, which were sold to Messrs. Reddie and Co., of Bristol, at £12 per ton, and about three tons were also sold to another company at £10 per ton.

The mountain being 1000 feet from the base to the summit, and the three main veins running parallel with the range of the mountain, which is 760 feet above the river at the base, and there being three cañons or cross veins, which at the surface are richly spotted with ore, it is intended to drive from the base an adit of about 150 fathoms long on the cañons and mountain, by which would cut through the whole of the veins at their several junctions, and thereby carry off the water, and exhibit their full resources, without the aid of machinery.

David Lloyd Harris, Esq., the part-proprietor of the freehold of these mines, not being willing to take upon himself individually the charge and expense of working them, and at the same time desirous to retain to himself his participation in the proceeds of so promising an undertaking, has leased the mines to the present lessees, for the purpose of establishing a company, and has signified his readiness to take one-sixth portion of the concern; this fact bearing full testimony to his conviction that capital judiciously applied cannot fail to ensure success.

There are 600 shares only to be issued to the public, the remainder to be at the disposal of the lessees.

CONDITIONS.

All the transactions of the company are understood to be regulated by what is termed, in mining language, the "Cost-book," and recognised among miners as founded upon the most correct principles.

That the capital of the company be £2000, in 1000 shares, of £2 each—deposit £2 per share; 10s. per share of which will be appropriated to the lessees, to defray their expenses in procuring grants, making surveys, and other incidental expenses; the remaining £1.10s. per share to be appropriated to the working of the mines, and future calls shall not exceed 10s. per share, and be made at intervals of not less than two months.

That all monies belonging to the company be deposited in the bank of Messrs. Denison, Hancocks, and Kennedy, to the credit of the company, in the names of the board of directors, and drawn therefrom by cheques signed by three of them, and countersigned by the secretary, in such sums only as will cover the current monthly costs, except as to sums specially voted by the board for the purchase of materials or machinery, &c.

Notice will be given in the Mining Journal, the Times, and local newspapers, when the instalments are to be paid into the banks of Messrs. Denison, Heywood, and Kennedy, London; and Messrs. Jones and Co., South Wales; and if not paid within the date of such notice, the shares shall be forfeited for the benefit of the general proprietors.

That a general meeting of the shareholders be held half-yearly in London, of which due notice will be given by the secretary, when all matters relating to the company's affairs will be decided.

That the affairs of the company be under the superintendence of the above directors, provided they hold the necessary qualifications; and that no director shall be eligible for re-election. The qualification for a director shall be twenty shares.

That no shareholder shall be liable for any amount beyond his or her respective shares.

That voting by proxy to a shareholder be allowed, and that every five shares shall entitle the holder to one vote, and no person to hold more than one proxy.

That the mining operations, and the general matters appertaining to the company's interest in the mines, be conducted by the lessees, who alone shall be responsible for all disbursements.

That the secretary shall keep a register-book, wherein he shall enter the name and abode of each proprietor, and the number of his or her shares; and in case of sale or transfer, the seller shall send to the secretary the number of the scrip so sold or transferred, with the proper address of the purchaser, and every share not so registered will not be recognised by the company.

The reports of the agents of the mines, and the books of the company, shall be open to the inspection of the shareholders at all reasonable times, at the office, on application to the secretary.

Purchases of materials shall be made for ready money, in order to exempt the shareholders from all liability.

A general meeting of the shareholders may be called at any time by a requisition, signed by shareholders holding not less than one-fifth of the whole number of shares, addressed to the secretary, at the offices of the company.

Applications for shares to be made to the lessees, Messrs. Conch and Fell, at the Nant-y-Brian and Trauwant Mines, near Llandovery, South Wales; F. Macquenn, Esq., No. 5, Great Winchester-street, Broad-street, London—the offices of the company; and to Messrs. Kins and Son, Solicitors to the company, Fen-court, 126, Fenchurch-street—on whom prospectuses may be had, also at the Mining Journal Office, 36, Fleet-st., London.

OFFICE FOR PATENTS, 7, STAPLE INN, HOLBORN

F. J. MURDOCH (concessor and late assistant to Mr. Hebert) informs INVENTORS and PATENTERS, that at his OFFICE they can obtain

REFERENCE TO A CLASSIFIED LIST OF PATENTS

(THIS ONLY ONE EXTENT), which shows at one view all the Patents ever granted for any particular object, whereby they may save much trouble and expense, and procure information not otherwise obtainable. BRITISH AND FOREIGN PATENTS OBTAINED, and USEFUL AND ORNAMENTAL DESIGNS REGISTERED.

SPECIFICATIONS carefully prepared, and REPORTS OF ENROLLED SPECIFICATIONS furnished on moderate terms.

FURNISHED AND WORKING DRAWINGS executed with accuracy and dispatch.

PATENT IMPROVEMENTS IN CHRONOMETERS.

WATCHES, AND CLOCKS.—E. J. DENT, 23, Strand, and 38, Cockspur-street watch and clock maker, BY APPOINTMENT to the Queen and his Royal Highness Prince Albert, begs to acquaint the public, that the manufacture of his chronometers, watches, and clocks, is secured by three separate patents, respectively granted in 1836, 1840, 1842. Silver lever watches, jewelled in four holes, 6 gs. each; in gold cases, from £8 to £10 extra. Gold horizontal watches, with gold dials, from 6 gs. to 12 gs. each.

DENT'S PATENT DIPLÉDOSCOPE, or meridian instrument, is now ready for delivery. Pamphlets containing a description and directions for its use in each, both to customers gratis.

ROYAL POLYTECHNIC INSTITUTION.—CHRISTMAS

HOLIDAYS.—The Lectures selected for this period of the year, by Dr. Ryan and Professor Bachmayer, in CHEMISTRY and NATURAL PHILOSOPHY will be illustrated by interesting and brilliant Experiments. A LECTURE ON THE PREVALENT DISEASE IN POTATOES will be delivered by Dr. Ryan, and also on the ATMOSPHERIC RAILWAY, by Professor Bachmayer, a Working Model of which, carrying several Persons, is exhibited daily. The additions to the OPAQUE MICROSCOPE, DISSECTING VIEWS, and CHROMATOPE, are very effective. The PHOTOCOPYING, Submarine Expedition, by Means of the DIVER and DIVING BELT. Among the various additions to the Working Models is COLEMAN'S NEW AMERICAN LOCOMOTIVE ENGINE, for ascending and descending Inclined Planes. A magnificent COLLECTION OF TROPICAL FRUITS, Mr. DOWNE, the celebrated Flute-player, will take part in the Music, conducted by Dr. Wolfe. Open from Eleven to Half-past Five, and from Seven to Half-past Ten in the Evening. Admission, One Shilling. Schools, Half-price.

RYE AND THOMAS, MINE AGENTS AND DEALERS

IN STOCKS, RAILWAY AND OTHER SHARES, 80, OLD BROAD-STREET, LONDON, AND AT LISKEARD, CORNWALL.

JAMES LANE, SHARE AGENT,

HALL OF COMMERCE, LONDON.

THOMAS DUNN, MINING AGENT, SHARE BROKER,

AND GENERAL INSPECTOR, TAVISTOCK, DEVONSHIRE.

WILLIAM TRENER, DEALER IN RAILWAY AND

MINING SHARES.—ESTABLISHED TEN YEARS.

OFFICES, No. 50, THREADNEEDLE-STREET, LONDON.

ESTABLISHED 1834.

WILLIAM FORDYCE, STOCK AND SHARE BROKER,

NEWCASTLE-UPON-TYNE.

MESSRS. LAMOND, SMALE, and LAMOND'S PUBLIC

SALE OF RAILWAY SHARES, &c., are HELD, at the Hall of Commerce, Threadneedle-street, every TUESDAY and FRIDAY, at One o'clock precisely.—Orders received until Four o'clock of the day prior to sale.—London, Dec. 20, 1845.

THOMAS THORBURN and CO., METAL BROKERS,

No. 48, BUCHANAN-STREET, GLASGOW, have always on SALE PIG-IRON, RAILWAY BARS, CHAINS, and BAR-IRON of every description.

HUGHES, COWIE, and CO., METAL BROKERS, have on

hand PIG and BAR-IRON of all descriptions and OTHER METALS, and tender their services to Railway Contractors, having a constant supply of RAILS and CHAINS, Fenwick Chambers, Liverpool.

WANTED, THIRTY-THREE YARDS of 17-inch, or

17½-inch, PUMP TREES; also a 16½-inch, or 16-inch, WORKING BARREL, Address, stating price, &c., to Mr. Stanley, Pembrey, Llanelli, Swansea.

TO IRONMASTERS AND OTHERS.—AGENCY

WANTED, by a gentleman residing in Liverpool, for the SALE of IRON, or OTHER METALS in extensive demand. References of the highest respectability. Address M 133, Post-office, Liverpool.

TO PERSONS DESIROUS OF ENTERING INTO THE

IRON TRADE.—WANTED, a PARTNER, that can advance £15,000, for which the works can be secured to him; £11,000 will be required to pay off the mortgage now upon the works, and the remains will be ample to carry on the trade. The works are nearly new, and were erected at a cost of upwards of £30,000, and are capable, at a trifling expense, of making 200 tons of bars, or rails, per week, exclusive of boiler plates, sheets, &c.; the situation is good for the supply of coals and pig-iron, and the advertiser would undertake the management.—Apply to Mr. E. Bagmal, Sand Pits, Birmingham.

BLAENAVON IRON and COAL COMPANY.—The

INTEREST on the DEBENTURES in this company, payable half-yearly, may be RECEIVED on application at these offices, on and after the 31st January, between the hours of Eleven and Three o'clock.

By order of the board,

Offices, 4, Pancras-lane, Dec. 13, 1845. JAMES BOOTH, Secretary.

ROYAL SANTIAGO MINING COMPANY.—The directors

herby give Notice, that the HALF-YEARLY GENERAL MEETING of the shareholders will be HELD at the office of the company, on Wednesday, the 7th of January next, at Twelve o'clock precisely, when the directors will make their report and conduct of a dividend.

38, Broad-street-buildings, Dec. 19, 1845.

ST. JOHN DEL REY MINING COMPANY.—Notice is

herby given, that the SEVENTH HALF-YEARLY DIVIDEND, being FIVE SHILLINGS per share on the shares in this company, will be PAID at this office on Monday, the 5th January next, and any succeeding day, between the hours of Ten and Four.

Forms for claiming the dividend may be obtained at the company's office, and must be left three clear days for examination previous to payment. GEORGE D. KEOGH, Secretary, 8, Tokenhouse-yard, Lothbury, Dec. 15, 1845.

TAMAR SILVER-LEAD MINING COMPANY.—

SMELTING DEPARTMENT.—INTEREST, at 5 per cent. per annum, to the 31st inst., on the CERTIFICATES, will be PAID on that day and following Wednesdays, between the hours of Twelve and Three o'clock. The certificates must be left at the office two clear days, to be examined and marked.

44, Finsbury-square, Dec. 18, 1845.

"INDUSTRY—ECONOMY—PERSEVERANCE."

MINING COMPANY OF IRELAND.—The stated HALF-

YEARLY ASSEMBLY of the Mining Company of Ireland will be HELD at the company's office, 30, Lower Ormond-quay, on Thursday, the 1st of January next, at Twelve o'clock noon, to receive from the board of directors a report, with abstract of the company's accounts for the half-year ending 1st of December last.

By order,

Dublin, Dec. 18, 1845. RICHARD PURDY, Secretary.

LAMERHOOE MINE.—At a Special Meeting of the share-

holders in Lamerhooe, West Maria Mine, held at the Corn Exchange Hotel, Marks-lane, on Thursday, the 18th day of December, 1845,

It was proposed by F. K. Kingsford, Esq., seconded by T. Conner, Esq., and carried unanimously,

That the finance committee having taken the opinion of eminent counsel on the title to the mine, the shareholders are perfectly satisfied that the lease for twenty-one years from May last, is good and valid.

It was proposed by William Morrison, Esq., seconded by T. Ruston, Esq., and carried unanimously,

That this meeting, being satisfied with the opinion of counsel, as read by Mr. Swift, deem it unnecessary to hold any further communication with Mr. Thomas on this subject.

(Signed) JOHN EDWARDS, Chairman.

Mr. Edwards having vacated the chair, which was taken by F. K. Kingsford, Esq.,

It was proposed by T. Ruston, Esq., seconded by H. Smith, Esq., and carried unanimously,

That the thanks of this meeting be given to Mr. Edwards, not only for his conduct as chairman of the day, but also for his general attention to the interests of the shareholders, as chairman of the finance committee, and that the meeting do take this opportunity of expressing their confidence in him, and trust he will continue to do them the service of acting as their chairman, for which, from his great knowledge of all mining matters, he is so eminently qualified.

LAMERHOOE WHEEL MARIA MINE:

WHEEL MARY MINE: ROSCARBEE MINE: WHEEL WALTER MINE: 30

THE BUSINESS relating to the ABOVE MINES will, in future, be CONDUCTED at No. 4, KING-STREET, CHEAPSIDE, where all information respecting the said mines may be obtained.—Dated Dec. 20, 1845. JAMES CROFTS, Secretary.

NOTICE TO THE PROPRIETORS AND SHARE-

HOLDERS OF MINES, SMELTING WORKS, &c.

Messrs. MITCHELL and FIELD beg to inform the PUBLIC, that they have REMOVED from No. 5 A to No. 23, HAWLEY-ROAD, KENTISH TOWN, where they have erected a spacious LABORATORY, fitted expressly for the performance of all OPERATIONS CONNECTED WITH MINING.—Practical instruction to gentlemen in Assaying, Mineral Analysis, and Manufacturing Chemistry in general.

Assays and Analyses conducted as usual.

All communications to be addressed to Messrs. Mitchell and Field, assayers, No. 23, Hawley-road, Kentish Town.

THE PATENT SAFETY FUSE,

FOR BLASTING ROCKS IN MINES, QUARRIES, and FOR SUBMARINE OPERATIONS.—This article affords the SAFEST, CHEAPEST, and most EXPEDITIOUS MODE of effecting this very hazardous operation. From many testimonies to the usefulness with which the manufacturers have been favoured from every part of the kingdom, they select the following letter, recently received from John Taylor, Esq., F.R.S., &c.:—"I am very glad to hear that my recommendations have been of any service to you

Glossary of English Mining Terms.

At the request of several correspondents, we are induced again to give a Glossary of Mining Terms, which will be alphabetically arranged and divided into those applicable to Cornwall, Derbyshire, and Mexico or Brazil. These will be followed by philosophical terms, and those generally used in scientific works or reports.

DERBYSHIRE.

- Adit**—A horizontal level taken up at the foot of a hill, and either driven on the lode or to intersect it, for unwatering or draining the mine at that level, and also occasionally used for bringing out the ores. The top adit is the adit first driven—deep adit the lowest adit driven—air adit is the adit driven purposely for ventilating the mine.
- Arched**—The roads in a mine when built with stones or bricks are generally arched; level drifts and horse roads, either when cut in coal or in other strata, are formed arch fashion in the cutting for better security.
- Bank or bank**—The face of the (coal) works or place where the miners are turning out the coal, sometimes called bank face.
- Bar master**—An officer who superintends the lead mines.
- Bar mote**—A hall or court in which trials relative to lead mines are held.
- Bassit**—The outcrop of the strata, when a substance as coal appears at the surface it is said to bassit; also sometimes used to signify the upper end of the works, as the bassit or upper end.
- Bearer or biard**—A large piece of timber to support the cistern and pumps in an engine-shaft.
- Balland**—Dusty lead ore.
- Belt**—A strap to which is attached a chain, by which coal miners draw the loaded corves of coal.
- Bender**—A piece of iron attached to trunks or barrels to which the pit rope is affixed.
- Bind**—Indurate clay; a name given by miners to any indurate argillaceous substance.
- Binghole**—A hole through which the ore is thrown.
- Bingplace**—The place where the ore is laid ready for smelting and measuring.
- Boring bit**—A piece of steel placed at the end of the borer.
- Blast**—The air introduced into a furnace.
- Blasting**—A hole made with a borer in which gunpowder is introduced, which being confined and set fire to by a match, forces off a portion of the rock or lode—the process is called blasting.
- Board**—or, **Board gate**—A adit is driven board when it runs in a transverse direction to the grain or face of the coal.
- Borer, Auger, or Drill**—A round piece of iron, the one end steeled.
- Bow**—See Bender.
- Bowse**—Lead ore as cut from the vein.
- Bretis**—The face of the (coal) workings.
- Bretis (in coal mines)**—A quantity of wood packed together, and the interstices filled up with slack or rubbish.
- Bretis way (ditto)**—A way or road in the mine supported by brettises, built up on each side after the coal has been wrought out.
- Bucker**—A flat piece of iron with a wooden handle used for breaking or crushing the ore by hand.
- Bucklers, or Tacklers**—Small chains put round the coals when loaded in corves to prevent them from falling off.
- Buddle**—A frame made of wood and filled with water in which the lead ore is washed.
- Builing**—Washing inferior ore lead to free it from extraneous matter.
- Bule**—A piece of wrought iron to put round buckets or clack doors on large pumps, to hold them in their respective places.
- Bunding**—Wood placed on which the refuse cuttings or deads are thrown.
- Butty**—In collieries a person who contracts to raise coal by weight or measure.
- Cank**—Whimstone.
- Cap or Lid**—A flat piece of wood placed between the top of the punch and the roof of the mine.
- Cat dirt**—A substance also called toadstone, being sometimes clay, coal, and pyrites of iron; at others, a kind of earthy scoria not unlike lava.
- Chair**—Used in drawing up ore or coal.
- Chisel**—See Drill.
- Churn-drill**—A large drill from four to six feet long, commonly made with chisel point at each end.
- Clect**—A wedge.
- Clivis**—A hook with a spring to prevent its unfastening.
- Coastroads**—A small building.
- Cofer**—Cofering is beating a quantity of clay round the bricking in shaft to prevent the water coming through, and to hold it back in the strata.
- Colliery bailiff**—Superintendent of the colliery.
- Cope**—To agree to get lead ore at a fixed sum per dish or load, or other measure.
- Coper**—One who agrees to get lead ore by bargain.
- Corf**—A square frame of wood to load coals on; a kind of sledge used to carry ore from the miners at work to the shaft bottom.
- Crop**—The weight of the incumbent strata after the coal has been partially worked out.
- Crib, or Curb**—A circular frame of wood, either pinned or screwed together, to serve as a foundation for the bricking in a shaft.
- Cross-cuts**—Are loads or levels driven in a diametrical direction, across the range of the vein.
- Crow-bar**—A lever from six to eight feet long.
- Cupelo**—A small furnace, worked by blast.
- Curb**—See Crib.
- Cutting**—An air course set up at either end of the work after the coal has been wrought out.
- Crosses and holes**—When a person discovers a vein, and has no means to possess it for want of stowces, he marks the ground with crosses and holes, by which means he possesses it until he can procure stowces.
- Dam**—Dams are made for various purposes underground, either for holding back water or noxious vapours, such as choke or fire damp. They are generally built either with sand or clay.
- Dan**—A square frame of wood to draw coals from the work to the main roads underground.
- Deads**—Cuttings of stone of no use, attle or rubbish.
- Deep level**—The watercourse leading to the engine-shaft, being always the deepest adit in the mine.
- Dial**—A compass used to take bearings in mines.
- Dialling**—Taking the different bearings of the various ways, gates, &c. in a mine; surveying.
- Dish**—A measure containing fifteen pints, Winchester measure.
- Door in a mine**—Is sometimes used to open and shut, to increase the circulation of air.
- Dresser**—See Loading pick.
- Drift**—The excavation made for a road underground.
- Drill**—An instrument for boring shot and other holes.
- Driving**—Cutting and blasting horizontally, applied to making a level or adit.
- End**—An adit is said to be driven end when it is in a line with the grain of the coal.
- Ending**—An adit driven in a direction with the grain of the coal.
- Elee**—The shaft or handle of a pick.
- Face**—The face of the coal is at right angles with the grain.
- Fang**—A niche cut in the side of an adit or shaft to serve as an air course; sometimes a main of wood pipes is denominated a fanging.
- Fausted**—Refuse lead ore requiring to be dressed finer.
- Faul**—An intersection of the strata.
- Feigh**—The refuse washed from the lead ore.
- Flat**—Flat work, &c. when a vein, &c. is horizontal.
- Forks**—Pieces of wood used to keep the side up in soft places.
- Foundermere**—The first thirty-two yards of ground worked.
- Foundershaft**—The first shaft that is sunk.
- Forefield**—The face or extent of the workings.
- Forefield end**—The farthest extremity of the workings.
- Freising**—Entering a mine or vein in the haramster's book.
- Fuze**—Straws or hollow briars, reeds, &c. filled with powder.
- Gallery**—A drift or level.
- Gate**—Road or way underground; it has various uses, either for air, water, or for bringing out the mine, coal, &c.
- Gin**—The machine by which the coal or ore is raised from the mine.
- Gobbing**—The rubbish remaining after the coal has been extracted.
- Grace**—A mine.
- Gingoin**—Walling up a shaft instead of timbering to keep the loose earth from falling.
- Hade**—The underlay or inclination of the vein.
- Hadings**—When some parts of the vein incline and others are perpendicular.
- Hangback**—Part of the stowces.
- Hanging side**—The wall or side over the vein, or to which it hangs.

Mining Correspondence.

ENGLISH MINES.

NORTH WHEAL ROSE MINING COMPANY.

St. Agnes, Dec. 16.—Since my last report, an eastern lode has been cut at the forty fathom level; it is a promising lode, but not without lead, though poor; we are opening north upon it. The cross-cut towards the lode at the sixty is driving at the rate of about nine feet a week; the ground is good, and with occasional branches, containing more or less of lead, and all dipping east. The ground shaft has been sunk between two and three fathoms under the sixty—ground good; the water is much increased, in consequence of the continued rains. The pitches are looking much the same, varying from a quarter to one-third of a ton per fathom. W. CARSE.

HOLMBUSH MINING COMPANY.

Dec. 16.—In the 120 fathom level cross-cut the ground is much improved. In the 110 fathom level, west of Hitchins's shaft, the lode is six inches wide, and poor; in the stipes in the back of this level, west of Hitchins's winze, the lode is eighteen inches wide, and worth 36l. per fathom; east of ditto the lode is ten inches wide, and worth 16l. per fathom; in the stipes east of the pump winze the lode is eighteen inches wide, and worth 80l. per fathom; in the stipes east of Doig's winze the lode is ten inches wide, and worth 15l. per fathom. The 100 fathom level, west of Hitchins's shaft, is for the present suspended for want of men—we hope to resume it in a few days; in the south end the lead lode is two and a half feet wide, and worth about 4l. per fathom; in the stipes in the back of the 100 fathom level the lode is sixteen inches wide, and worth 24l. per fathom. In the ninety fathom level, driving north, the lead lode is two feet wide, at present worthless. In the sixty-two fathom level we are still in the cross-course. In the rise in the back of the eighty fathom level, against Bray's shaft, the lode is six inches wide, at present poor, and ground hard. WILLIAM LEAN.

WEST WHEAL JEWEL MINING ASSOCIATION.

Dec. 15.—The 100 fathom level east, on Wheal Jewel lode, is worth 6l. per fathom; in the 100 fathom level west, on ditto, the lode is one foot wide, containing occasional stones of ore. In the eighty-five fathom level west, on ditto, the lode is worth 8l. per fathom. The seventy fathom level west, on ditto, we have suspended for the present, and have put the men to sink a winze below the level. The eighty-five fathom level west, on Buckingham's lode, is one foot wide, promising for copper; the eighty-five fathom level west, on the south branch, is six inches wide, composed of spar and spots of ore; in the eighty-five cross-cut south the ground is still favourable for driving. The thirty fathom level east, on Morcom's lode, is eighteen inches wide, composed principally of spar and peach. The twelve fathom level east, on Tolcarne lode, is two and a half feet wide, producing some good work for tin; in the twelve fathom level west, on ditto, the lode is worth 4l. per fathom. The deep adit west, on Wilkinson's lode, is two feet wide, unproductive. S. LEAN.

GURNIS LAKE MINING COMPANY.

Dec. 16.—At Chisworth, the engineers and sumpmen are all busily engaged doing necessary work for setting the engine to work. In the adit level east the lode is without alteration, 2 ft. wide, and very kindly.—W. RICHARDS.

LANIVET CONSOLS MINE.

Dec. 13.—The seventy fathom level, west of engine-shaft, is looking just as last reported, a good lode of ore, two and a half feet wide; in the seventy east, the lode is large, but not producing much ore. The winze sinking under the sixty fathom, west of shaft, is improved; the lode is about eight feet wide, with a leader of rich black and grey ore, about one foot wide; the other part of the lode is also producing saving work; the winze at the sixty, east of shaft, is sinking in a lode, about two and a half feet wide, with a branch of ore from one to one and a half feet wide. The lode in the forty fathom level is looking just as last reported.

TRELEIGH CONSOLS MINING COMPANY.

Dec. 13.—In the ninety, east of Christo's, the lode is three feet wide, worth about 12l. per fathom; in the ninety, west of ditto, we have driven on the cross-course six and a half fathoms, and expect soon to cut the lode; in the ninety, west from sump winze, the lode is two feet wide, but very little mineral. In Garden's shaft, below the eighty, the ground is much the same as it has been (hard). In Good Fortune shaft, below the seventy, the lode is about four feet wide, with stones of ore, still hard for breaking; in the seventy, west of Good Fortune, the lode is about three and a half feet wide, producing a small quantity of ore. In the rise above the sixty the lode is two and a half feet wide, producing but little mineral. In Symons's shaft, below the fifty, the lode is three feet wide, worth 10l. per fathom. In the fifty cross-cut, north of ditto, the ground is much the same as it has been. In the fifty, west of ditto, the lode is two feet wide, worth 5l. per fathom, looking kindly. In the thirty-four, west of ditto, nothing done. In the twenty, west of ditto, the lode is two feet wide, no mineral. In the adit, west of ditto, the lode is three feet wide, worth 5l. per fathom. W. SYMONS.

EAST TAMAR CONSOLIDATED MINES.

Dec. 15.—At Whitson, in Hitchins's shaft our men have been engaged in cutting down ground, and fixing our sinking lift for forking the water under the twenty fathom level, which work is completed—we shall be ready for sinking by to-morrow morning. At the south shaft we have cleared and secured south twenty fathoms, where we have discovered some more ground that will set on tribute, and north twelve fathoms, which has made a convenient road to bring out the tributaries' work. At Fuzell's, the engine-shaft is cut down and secured seven feet—the lode is just the same as last week's report. At Charlotte's, the pitches are the same in appearance as last week.—B. ROBINS.

BARRISTOWN LEAD MINE.

Carry Tugmon, Dec. 12.—The lode in flat-roof shaft is improved since my last—it is now worth 45l. per fathom; in the end driving west from the shaft at this level, the lode is sixteen inches wide, producing two and a half tons per fathom; in the eastern end we have taken down no lode since my last; the stipes, back and bottom, behind this end, look much the same—the lode is eighteen inches to two feet wide, producing one ton per fathom; in the stipes west, behind the western end, the lode is eighteen inches wide, producing half a ton per fathom; the end driving east, on middle lode, looks more regular, two feet wide, producing half a ton per fathom. The lode in the shaft sinking in the eastern part of the mine looks well, producing between two and three tons per fathom, and five feet wide. We have the lode in the other shaft sinking, but producing little lead; it has just intersected the lode on the back. The lode in rise from cross-cut is 2 ft. wide, producing stones of ore, irregular.

TINCROFT MINING COMPANY.

Dec. 15.—The new engine-shaft is about four fathoms below the ninety fathom level, the sumpmen are now engaged fixing plunger-lift from the seventy to the ninety fathom level; this will occupy two or three days more. The lode in the ninety east is two and a half feet wide, producing some good quality ore, and very promising; the same level west is at present unproductive, the lode being disordered by cross branches. The lode in the eighty fathom level is three feet wide, producing some ore, and very promising; the lode in the same level end is three feet wide, worth 15l. per fathom. The lode in the seventy end east is two feet wide, producing some copper ore and tinstuff; the lode in the seventy end west is two and a half feet wide, ore throughout, worth 20l. per fathom. The sixty, fifty, and forty ends east are producing tinstuff of fair quality, as is also the rise in the back of the sixty, which will soon be communicated to the fifty fathom level. The lode in the sixty west is twelve inches wide, producing some ore, and very promising; the same may be said of the fifty—these levels are laying open ground that will work on tribute by-and-by. At Palmer's, we are driving the seventy fathom level west, on the south part of East Pool lode, we shall soon cut into the north part. The lode in the sixty west is eighteen inches wide, ore, but not so good as it has been; the back and bottom of this level is working at a moderate tribute by twenty-six men. In the south mine, the lode in the engine-shaft is two and a half feet wide, worth 80l. per fathom; at present we are stopping west from the shaft, in order to make a plat. The lode in the 152 east has not been taken down in the past week, but we calculate from the last taking down that it was worth 50l. per fathom; the lode in the 152 west is two and a half feet wide, worth 50l. per fathom. The lode in the 142 east is three and a half feet wide, worth 25l. per fathom. The lode in the 120 east is three and a half feet wide, worth 15l. per fathom. The winze sinking from the 110 fathom level, just below the last-named end, is worth 25l. per fathom. Our pitches continue to yield fair quality tinstuff. We have exchanged the boilers at the stamping-engine, and are now getting on very well, stamping tinstuff and crushing copper ore. I expect we shall sell about 1000l. worth of tin in a fortnight from this time; I hope to get 600 tons of copper ore for next sampling.—W. PAUL.

HAWKMOOR MINING COMPANY.

Dec. 16.—The lode in the western engine-shaft is twelve inches wide, composed of spar, gossan, and ore. The lode in the fifteen fathom level, east of Hitchins's engine-shaft, is twelve inches wide, presenting appearances as for some time past; and in this level west the lode is fifteen inches wide, composed of capel and spar, with stones of copper ore. In the south engine-shaft the lode is eighteen inches wide, composed of mundie, spar, and spots of yellow copper ore. P. RICHARDS.

BEDFORD UNITED MINING COMPANY.

Dec. 16.—At Wheal Marquis, the lode in the seventy fathom level east is two and a half feet wide, composed of gossan and ore, worth 10l. per fathom; in this level west no lode has been taken down. The lode in the fifty-eight fathom level east is two feet wide, and worth 8l. per fathom; and in the rise in this level the lode is one foot and a half wide, composed of mundie, spar, and ore. In the forty-seven fathom level west, on the south lode, the lode is fifteen inches wide, composed of gossan, spar, and ore, still worth 8l. per fm. At Ding-Dong, there has been no lode taken down in the twenty-four fathom level east and west. At Wheal Tavistock, the lode in the thirty-five fathom level, east and west of Phillips's engine-shaft, is about eighteen inches wide, composed of spar, mundie, gossan, and ore, very kindly. In the twenty-five fathom level west the lode is eighteen inches wide, composed of spar, mundie, and ore. JAMES PHILLIPS.

UNITED HILLS MINING COMPANY.

Dec. 15.—In Williams's engine-shaft, under the eighty, the lode is two feet wide, worth 60l. per fathom. In the eighty, east of Williams's shaft, the lode is three feet wide, worth 25l. per fathom; in the eighty, west of ditto, the lode is three feet wide, not producing any ore. In the seventy, east of eastern shaft, the lode is eighteen inches wide, worth 4l. per fathom; in the seventy, west of ditto, the lode is three feet wide, worth 5l. per fathom; in the seventy, east of James's shaft, the lode is two and a half feet wide, poor; in the seventy, west of ditto, the lode is three feet wide, worth 5l. per fathom. In the sixty, east of eastern shaft, the lode is two feet wide, worth 12l. per fathom; in the sixty, west of Harper's winze, the lode is two and a half feet wide, worth 9l. per fathom; in Harper's winze, under the sixty, the lode is three and a half feet wide, worth 20l. per fathom; in the stipes, back of the sixty, east of Harper's winze, the lode is two and a half feet wide, worth 17l. per fathom; in the winze, bottom of the sixty ditto, the lode is five feet wide, worth 25l. per fathom; in the fifty cross-cut south, in this cross-cut, the ground is much harder for driving than last reported. At Wheal Sparrow, Gibson's shaft, under the fifty fathom level, in this shaft, the ground still continues hard and troublesome for sinking; in the fifty, east of Gibson's shaft, the lode is two feet wide, worth 4l. per fathom. In the forty, east of ditto, the lode is two and a half feet wide, worth 18l. per fathom; in the forty, west of ditto, the lode is two feet wide, poor; in the forty, east of Richards's shaft, the lode is two and a half feet wide, unproductive; in the stipes, back of the forty, east of Gibson's, the lode is two feet wide, worth 16l. per fathom. In the thirty, west of Richards's, the lode is 18 in. wide, worth 4l. per fm. T. TREVENNER. R. WILLIAMS.

LEWIS MINING COMPANY.

Dec. 15.—Kuskey's engine-shaft, at the 42 fm. level, we have commenced opening the plot, and putting in penthouse, in order to sink under the same level; the lode in the forty-two fathom level end west is one foot wide, producing occasional stones of good quality yellow ore, with much mundie, some white lead, a soft spar, peach, white iron, &c.—a very promising lode. We are still continuing to drive the north cross-cut to intersect the north lode, ground favourable. The flat-rod shaft on Wheal Providence lode is seven fathoms under the thirty-one fathom level from surface, the lode is sixteen inches wide, unproductive. At Wheal Nutt, the engine-shaft is nine fathoms under the forty fathom level, the lode is two and a half feet wide, producing some tin, a very kindly lode; the lode in the forty fathom level end west is two feet wide, producing some tin; the lode in the forty fathom level east is eighteen inches wide, worth 20s. per fathom for tin. The lode in the thirty fathom level end west is nine inches wide, with some tin; the lode in the thirty fathom level end east is disordered at present by a floolan, and heaved south from its regular course; the lode in the thirty fathom level end east, on south lode, is eight inches wide, worth 20s. per fathom for tin. The lode in the twenty fathom level east, on north lode, is eight inches wide, unproductive. The lode in the ten fathom level end west is eighteen inches wide, worth 28s. per fathom for tin. Our tributaries are working with great spirit, and making fair wages at their different tributaries at our stamps. We have met with a slight misfortune in breaking one of the tooth-wheels, but we expect to work again to-morrow. S. S. NOBLE. P. EDDY.

CALLINGTON MINING COMPANY.

Dec. 15.—In the 100 fathom level, driving north of Johnson's engine-shaft, the lode is small, producing silver-lead ore; in the south end the ground we are opening will set at 10s. in the 1l. on the value of the lead. In the ninety fathom level we have a very kindly lode, though not so rich in lead as we expected; the back will set at 8s. in the 1l. In the eighty fathom level the lode has not been taken down; the north engine-shaft is now down about four fathoms below the ninety fathom level—the ground is hard for sinking; in driving south, at this level, the lode is small, producing work of good quality; the ground is soft for driving; in the north end the lode is improving, the backs will set at 7s. in the 1l.; no lode taken down either in the eighty or seventy fathom levels. At the count-house shaft we have just completed the whim pit and fixed a pent-house; we are now ready to commence sinking. Our tribute pitches, on the whole, are turning out well. J. T. PHILLIPS.

SILVER VALLEY MINING COMPANY.

Dec. 15.—I beg to say that the engine continues to work very well; we are now in course of dropping two lifts to fork the water to the thirty-three fathom level, which we expected to have done before this time, but having had more ground to cut than was anticipated, for fixing different parts of the pitwork, it has been a delay of some days, and we find, in going down, that, as the pitwork we have to fix is larger than that which was worked in the shaft before, we shall have to cut some ground for fixing the plunger-lift to the thirty-three fathom level; this, we find, is the bottom level, by dropping with a line on the stuff in the bottom of the shaft, and according to the information of some of the men that were employed here in the former working, we shall get the water in fork by Thursday next. The north tin lode, in the adit end west, being poor and ground harder, we have suspended operations; the level is driven about 65 fathoms on the course of the lode, and, judging from its appearance, I have no doubt but that it will prove productive in depth. S. RICHARDS.

FOREIGN MINES.

ST. JOHN DEL REY MINING COMPANY.

Dec. 15.—The directors have declared a seventh half-yearly dividend, being 5s. per share, payable on the 5th of January next. The gross amount of produce at Morro Velho, for the six months ending 31st August last, has been as follows:—March, 3290l.; April, 3912l.; May, 4347l.; June, 4464l.; July, 5582l.; August, 4040l.—Total, 22,624l. The expenditure for the six months, 16,873l.; the duty, 5 per cent. at the mine, and 2 per cent. on exportation, 1,582l.—Total, 18,456l.—making the net profit at Morro Velho, 4168l.

The following is a statement of the company's finances—Cash at Month. Barclay and Co.'s, 2431l.; bills receivable, 269l.; railway debentures, 5000l.—Total, 7700l. Deduct drafts running, 4476l.—leaves a balance of 3224l. In Brazil, the amount of funds in the manager's hands, on the 31st August, was about 4428l.; gold on hand, at the same date, 22590lts., value about 766l.—Total, 5194l.; from which deduct owing in Brazil, about 3789l.—leaves a balance of 1405l.—making the total surplus, including balance at bankers, 4607l.

The dividend of 5s. per share will take 2750l.—The directors have not considered it prudent to declare a higher dividend than 5s. per share for the past half-year. The company has suffered severely during the last six months, from the effects of the deluge of rain which took place in December, 1844, filling the whole of the mining works with water, and inflicting other mischiefs, as detailed in the last annual report—which have now, however, been remedied. The increase of expenditure, from this cause, has been very considerable. The standard of the ore, during the last six months, has not been so good as during the corresponding period of 1844, arising partly, if not wholly, from the want of hands to pick the ores—much extra labour having fallen on the establishment in consequence of the casualties of December last. Notwithstanding these drawbacks, there has not been one of the six months in which the mines have not left some profit. Arrangements have been made for securing an additional force of between 200 and 300 persons, which has been greatly needed, the underground works having been frequently impeded, during the last six months, for want of hands. The erecting a village to receive these persons, has been another item of extra expenditure during the same period. It is reasonable to expect from this increase of force an increase of produce. The directors consider that, on this and on other grounds, there is good reason to believe that the ensuing six months will give a very improved result, as compared with the last. The supply of ore never fails. G. D. KEOGH, Sec.

PACHUCA MINING COMPANY.

Oct. 25.—Rejona.—The clearing of the winze below the 215 vara is still carrying on, but nothing has been discovered worth notice; we are down twenty varas. The clearing of San Miguel shaft is completed; the bottom was found twenty-nine varas, where there is a cross-cut driven south, and cut the hard or south part of the lode. I cannot describe much regarding the appearance or nature of the lode when found in the cross-cut, in consequence of the removing of the attle from that point having only been completed to-day. However, this will soon be ascertained, as we intend to employ two barretters for the purpose of breaking some of the vein, to see what advantages it may offer for further trial. Should it be determined to carry on operations here to any great extent, perhaps the best plan would be to commence a level or adit near the river, and drive it into the hill upon the course of the vein, by which means the concern would be fairly tried. Suppose that by driving from the river west to San Miguel shaft, a distance of about 126 fathoms level, a depth of forty-five fathoms perpendicular would be obtained. There are two other shafts sunk on the vein between San Miguel and the river, in both of which we find water; this, however, would be drained by means of the proposed adit. The samples of habones (steatite) taken from the end of San Miguel shaft, ten varas below the surface, assayed as follows:—24l. mcs., 12l. mcs. was 4 1/2 oz. A hard, kindly looking blue stone, from the lode in the cross-cut, assayed 6l. marcos per monton.

Esperanza.—The 100 vara level, east and west of shaft is much the same as last month, and still soft. The San Buenanenhura, ninety-five vara level west, is still favourable for driving, but presents nothing worthy of remark.

Quadaloupe.—The 198 vara level has been driven through the channel of ground or cross-course mentioned in my letter of the 24th September, which is fifteen varas wide. On finding the eastern wall we drove north two and a half varas, and have discovered a branch, which in direction and underlay resembles our lode. We have driven three and a half varas upon it, and find it wider than at first.

Pachona, Oct. 29.—By recent letters you will have been informed that the workings in the Rejona Mine have been confined to the clearing of a winze below the 200 vara level, in a line corresponding with the Rejona shaft, through the old working, filled with attle. We hope by this means to reach the bottom of the mine, where it is stated one of a better class, and in greater abundance, may be expected. The extent of the workings is very great, and nearly all the lode appears to have been worked out, only one or two arches have been met with. This circumstance would seem to indicate that the vein must

have been a productive one, but how far there yet remains to reach the bottom no one can give correct information, although we are told that good ore was left going down, at the time deep workings were abandoned. You will perceive by Captain Trenear's report, that during the month we have cleared up a pit called San Miguel, sunk on a vein about 100 yards north of Bejona. I was led to do this from information I received, that there was some good ore going down, and the assays already made confirm the fact. Captain Rubling and Trenear describe it to me as a very promising place. The lode is large, and the workings only thirty yards deep. Four assays made yesterday came out:—No. 1, 20 mcs. 54 oz.; No. 2, 2 mcs. 5 oz.; No. 3, 8 mcs.; No. 4, 8 mcs. 4 oz. The quantity of ore that can be raised is still to be ascertained; for the present I have ordered two men only to clear the place. At Esperanza the 100 vara level has been extended east and west on the course of the lode about seventy yards, and the indications have been uniformly the same—pon-tas, and occasional stones of ore in red sparry gossan. It is the opinion of the underground agents, as well as myself, that at a greater depth a favourable change may be expected, and with this view we have suspended driving the 100 vara level for a while, and commenced sinking the shaft below the lode in the 108 vara level at Guadalupe, which has of late been disordered by a cross channel of ground, but I expect it will regain its usual appearance after the end is driven further east.

WILLIAM RUIZ.

[FROM CORRESPONDENTS.]

KITT HILL, near Callington.—An adit level has been commenced driving south through this hill, from Deer Park, which will intersect or pass through several lodes, most of which have been found at different points very productive, such as the Gunnis Lake, Bedford Consols, Holmbush, and other lodes.

NORTH FOWEY CONSOLS.—This sett has been recently resumed by a spirited party of adventurers, under the superintendence of Capt. Mark Richards. Two lodes of a very promising character, four feet wide, and another about two feet wide—thus making ten lodes already discovered in the sett—most of which have been found producing both of tin and copper. The sett is extensive, being about two miles square, the property of Nicholas Kendal, Esq.

WHEAL MARY ANN, in Lanivet.—A shaft has been sunk on the course of the lode, which is three feet wide, and very strong. An adit level has been driven about 100 fathoms, there being now from 25 to 35 fms. more to drive to cut the lode, which will intersect the same about forty fathoms deep.

WHEAL ST. CLEER.—This mine still maintains the favourable opinion entertained of her. The engine-shaft is now down about forty-three fathoms in hard or settled ground. At the forty-five fathom level it is intended to drive and cut the lode. At the thirty fathom level they are driving west on the south lode, which is both large and promising.

MEAVY CONSOLS, near Tavistock.—This sett contains several very promising lodes, containing excellent stores of sulphuret of copper, running through a beautiful killas. The principal lode on which they are now working is a large champion lode, running east and west, of strong capel, with a branch of ore about ten inches wide. There is also grey ore of a rich quality mixed with the capel, samples of which have been assayed, and produced 41½ per cent. The shares have been much in request, and picked up at 3½ to 4½ per share.

WEST WHEAL FRIENDSHIP, near Brent Tor.—This mine holds out much promise, and the highest opinion is entertained of her by the different mining agents who have lately inspected her. A great number of shares have changed hands at 1½ and 1½ per share, including the call of 1½ recently made.

TRELAWNEY CONSOLS, in Calstock.—The tramroad in the adit level is completed, and in course of being cleared very fast; the lode, which is a very promising one, will now in a short time be more fully developed. The sett adjoining on the west has been taken up, and will to a considerable extent prove the lodes in Trelawney.

CARADON VALE.—At a meeting of shareholders, recently held at Liskeard, it was resolved, that the shaft should be immediately sunk below the adit level as far as the water will admit, or to cut the lode. The lode going both east and west at that level is looking very promising, and running through favourable ground. The shaft will take the lode at about fifteen fathoms depth.

DEVON AND COURTNEY CONSOLS.—Although the lode is at present a little disordered in the adit level, it does not in the least militate against the general prospects of this sett, for there is not the least doubt of her becoming a great and profitable mine in depth. There are two shafts in course of sinking, one sixteen fathoms, the other six fathoms deep, and the increase of water in both temporarily suspends the sinking, whilst they are driving a cross-cut from the deep adit, which will unwater the both; the stuff which is taken from the six fathom shaft, certainly indicates a most favourable alteration. There is about 20 to 25 tons of very good copper ore on the surface, which will, it is hoped, be considerably increased in course of a short time.

CARADON WHEAL HOOVER is improving very much—the lode in the shaft is four feet wide, composed of peach, gossan, spar, copper, mundic, mica, and prinn, and what miners call a very "kindly" lode; this lode underlies south. Six fathoms south of the engine-shaft is a lode five feet wide; and twenty fathoms further south of that are three other lodes, varying from two to three feet wide. The engine-shaft is sunk seventeen fathoms from the surface, and the ground in the shaft is considerably easier than it was a few fathoms above, inasmuch that three fathoms per month can be effected. It is deemed by many practical agents that the South Caradon lodes are hoversouth into Wh. Hoover; perhaps this supposition arises from the want of success in East Caradon, where only one lode has been discovered, after several years' search.

CARADON CONSOLS.—A very considerable improvement has taken place here; the lode, which was not more than four inches to six inches wide in the adit level is now in the shaft, and increased to two feet big, and of a very promising character.

COOMBE VALE CONSOLS MINE, in the parish of Lamerton, in the county of Devon.—This sett, which is one mile and a half from east to west on the course of four east and west lodes, and half a mile from north to south on the course of two north and south lodes, is within a quarter of a mile of the very productive Wheal Maria Mine. The whole of these lodes, which are laid open at the surface, strongly indicate the presence of minerals. No. 1, or south copper lode, seen nine feet below the surface, is two and a half to three feet wide, composed of gossan, spar, peach, mundic, with stones of copper ore. No. 2 copper lode, which will be intersected by sinking the engine-shaft down to the next level (which will be forty fathoms below the surface), is considered of itself a good speculation. No. 3 copper lode, as seen four fathoms below the surface, is five to six feet wide, and contains gossan of first-rate quality. No. 4, a newly-discovered east and west lode, fifteen to eighteen inches wide, is about three fathoms north of No. 3 copper lode, with a less inclination, so that these lodes will form a junction at no great depth. The north and south-west of the engine-shaft, called in the map Wheal Maria lode, varies at the twelve fathom level from four to eight feet wide, showing two fair walls; the leader near the hanging wall is one foot wide, composed of black jack, candid spar, mundic, and interspersed with lead throughout. The lead lode, east of the shaft at the twelve fathom level, called Dodge's lode, is nine feet wide, with two smooth walls, and containing branches of lead near the foot wall. The facilities for working a mine, such as are here found, are seldom to be met with. A water-wheel has been erected, 35 ft. diameter and 4 wide, which, with so good a supply of water, will enable us to prove the mine at a depth of 100 fathoms below the adit level.—Work done since the commencement of the mine in February last:—The engine-shaft sunk from surface, 30 fms.; shaft on course of west lead lode, 7 fms.; winze sunk on west lead lode, 3 fms.; winze on east lead lode, 1 fm.; adit level driven, 58 fms.; twelve fathom level driven east and west, on course of lodes, 51 fms., besides other work at surface.

JAMES ROUSE.

Purser's Account.—October costs, 94½ lbs. 1d.; November, 90½ lbs. 1d.; balance, 83½ lbs. 6d.—Total, 268½ lbs. 10d. Balance 25th Oct., 35½ lbs. 10d.; call of October 23, 233½ lbs. 10d.; leaving cash in the bankers' hands, 85½ lbs. 8d.

J. T. PEARSE.

WHEAL CARPENTER.—This sett of an estate belonging to Mrs. Carpenter, of Mount Tavy, South Sydenham, Tavistock, has been taken by Mr. J. H. Hitchens, and others, for mining purposes; it is extensive, and said to be promising, having Wheal Concord and Wheal Grace lodes passing through it. The Wheal Grace lode has been cut in the sett, about four feet wide, and promising for producing lead ores.

CANN BREA MINES.—A further dividend has been declared of 2½ per share.

DARTMOOR.

LYDFORD CONSOLS, is an extensive sett on the borders of Dartmoor, which contains several large and promising lodes of silver-lead, as well as tin and copper, and which have been costed on the surface, to the extent of three hundred fathoms. The old adit level has been cleared about eighty fathoms, and the present carries a leader of lead worth about 5½ per fathom. The shaft has been also cleared from the surface to the back of the adit level, which is fifteen fathoms deep; the appearances of the lodes have induced several respectable parties to join the adventure.

WHEAL CASTLE, situate contiguous to the above, contains several promising lodes. On sinking in the adit level on course of the lode, a leader of about seven inches big was found, worth about 4½ per fathom; but, in consequence of the quickness of the water, it has been resolved to erect immediately a water wheel of sufficient size to work her to a considerable depth—having the advantage of an ample stream of water applicable to all necessary purposes. The mine is divided into 256 shares.

WHEALS LUXMORE AND CROUCH have been resumed upon a new deed for twenty-five years, and is divided into 256 shares. At a meeting of the adventurers held last week, it was resolved that a call of 1½ per share be immediately paid; and the lodes to be cut twelve or fifteen fathoms deep, and if found so encouraging at that depth as seen in the old workings, to erect a powerful water-wheel, and sink her a good depth.

THE SOMERSET MINE is situated on the Haytor-common, about six miles north-east of Ashburton, on a lease of twenty-one years, at a dish or dues of 1-20th for tin, and 1-16th for copper. The sett is about 600 fathoms from east to west, and about the same from north to south. Operations commenced here in May last, and scarcely five fathoms had been sunk, on course of the lode, when a bunch of tin was cut about one foot wide, of superior quality; preparations are making for dressing the ore, which will be completed so as to render it marketable in a few weeks. An adit has been driven twenty fathoms on course of the lode, at a depth of four fathoms, and another adit will be completed, at a depth of seven fathoms, in about ten weeks. The shaft on the lode has been sunk seven fathoms, in which a good lode is standing in the east end of the shaft.

CROUNLEY MINE is situated about one mile south of Somerset mine, and is held under lease on same terms, being above 600 fathoms square. An adit has been driven ninety fathoms, in which a lode nine feet wide was cut about a fortnight since; the adit is being driven 200 fathoms west, and will be fifty fathoms deep; another adit has been commenced at the foot of the hill, which will intersect the lode, eighty-five fathoms deep, and, from the appearance of the lode, which contains excellent stones of tin, there is very little doubt of her making a first rate mine. There are five other lodes known in the sett, which will be intersected by the adits.

WHIDDON MINE is situate about two miles from Ashburton, and in the same parish; and held for a term of twenty-one years, at dues of 1-14th for copper, and 1-16th for tin, with an annual rent of 50£, until the dues amount to that sum. The sett is about 300 fathoms in length from east to west, and 150 fathoms in width, and most advantageously situated for the erection of machinery, having a powerful stream of water passing through it. This mine was worked about fifty years since, when large quantities of tin were raised above the adit, inasmuch that it was deemed expedient to erect a smelting-house on the mine, for the purpose of converting the ore into metal on the spot, and was abandoned at that time, in consequence of a dispute amongst the adventurers. The mine is situated in the side of a hill, and the deep adit, at the extremity of the sett eastward, will take the lode at a depth of fifty fathoms. The lode is from four to five feet wide, and is represented as of the most promising description, but nothing has been done below the adit level.

WHEAL WILLIAM AND MARIA MINE, near Bridestown; about seven fathoms have been driven on the course of a lode, which has yielded good copper ore, and about 3 fms. 3 ft. have been sunk on the same lode, under the bottom of the level, which has also produced promising stuff, and that which is congenial to ore; by continuing this level about fifty fathoms, it would then be thirty fathoms from the surface; but there being a north and south lode which would intersect this, about fifty fathoms from the mouth of the present level, it is deemed advisable that this level be extended south to meet the copper lode, the lode on the cross-course being of a much softer nature and quite congenial to lead ore. 11 fms. 3 ft. have been driven on the lead course, and about forty fathoms more would reach the copper lode, and, as valuable changes generally take place where lodes intersect each other, it is intended to continue the driving, which will reach the copper lode, it is calculated in about four months, by four men.

CORNUBIAN MINING COMPANY.

A special general meeting of the directors and proprietors was held at their offices, Finsbury-square, on Monday, the 15th inst., for the purpose of taking into consideration the future working of the mines, and the course to be pursued in further prosecuting the undertakings of the company.

PETER STAINSBY, Esq., in the chair.

The advertisement convening the meeting having been read, and also the minutes and report of the last meeting, Mr. LEE (one of the shareholders) wished particularly to know what was the real state of the Cornubian Mine, and what were the expectations to be entertained of its ultimate success? as, up to the present time, it had been more loss than profit; and he wished to be informed, what were the intentions of the directors on the subject?—The CHAIRMAN replied, that he, as well as all the directors, were ever anxious to give every information for the satisfaction of the shareholders, and he would read to the meeting the various letters he had received from Captain Rowe, their mining captain, explanatory of the present state of the mines, and the results that might be expected in their further workings.—[Several letters were then read from Captain Rowe, in which he strongly advised the company no longer to continue the working of the old mine, as it would never yield a profit to the shareholders, and recommended the directors to dispose of it should any reasonable offer be made.]—He had, however, proposed, in one of his letters, to work the mine at the rate of 100£ per week; but a fortnight after, he retracted his proposal, having found that he could not perform the engagement at that price, as many unexpected obstacles were experienced in the mine, in consequence of the water. The shaft had been sunk eighty-six fathoms, but if they went deeper, he did not see that there was any likelihood of a successful result, as the ore was of a poor quality.—Mr. LEE understood that, at the last meeting, it was agreed that Captain Rowe was to discontinue the works until further instructions; he also understood that 1200 new shares had been issued, and wished to know for what purpose that new capital had been raised? as he had been informed that 2000£ of it had already been expended—from which, however, he could not perceive any beneficial results to the shareholders—and he was far from being satisfied at the manner the affairs of the company in general were conducted.—The CHAIRMAN replied, that Mr. Lee was somewhat mistaken—no more money having been expended than could absolutely be avoided; they had now a 60-horse power engine and a smaller one pumping at Murray's shaft, and had not spent the whole of the money—there being yet the sum of 1422 19s. 6d. in favour of the mine.—Mr. SCOTT said, that, at the last meeting, he had proposed that there should be only 1200 new shares issued, instead of 2000, which was carried, but he could not see what had yet been done to the advantage of the shareholders.—Mr. LEE proposed, "That a competent person be appointed to examine the mines, and that the meeting be adjourned for a fortnight," so as to have a concise explanatory report on the subject, previous to abandoning the Cornubian Mine.—One of the SHAREHOLDERS said, previous to any resolution being come to, he had been given to understand, that some of the directors had not yet paid up the full amount of their shares, and he considered they ought to be forfeited, having been standing over for more than a year, which was a very bad example; he very much doubted the propriety of exercising so much leniency, and trusted that either the payment of the calls, or the confiscation of their shares, would at once be enforced.—The CHAIRMAN replied, that he was bound to say such was, unfortunately, the case, but that the company had the means in their power to enforce such payments, which would be done or the shares confiscated.

After a few observations from other shareholders, Mr. MURRAY proposed that Captain Middleton be appointed to examine the mines; he was considered a very clever mining captain.—Mr. LEE then moved his resolution—"That Captain Middleton, of the East Wheal Rose Mine, should be requested to examine and report as to the real state of the Cornubian and Ventonings Mines; and, in case he could not devote his time, to recommend some other well-qualified person, but that no one should be appointed who had the least interest in the mines, and quite independent of the company; and, for that purpose, the meeting to be adjourned until Monday, the 29th inst., to meet to receive such report, and then to decide on the measures to be adopted."

Mr. PLUMTREE read the resolution, which was unanimously adopted. The CHAIRMAN stated, that the mines had been examined by Captains Paul, Lean, Bruce, and J. D. Williams, but it would be satisfactory that the most ample information should be obtained; he had done his duty to the utmost of his power as long as he had held the office of presiding at their meetings, and was always ready to give the most minute details on every matter connected with the company.—The meeting then separated.

LAMERHOOE MINING COMPANY.

An adjourned special meeting of the adventurers in this mine was held at the Corn Exchange Hotel, Mark-lane, on Thursday last, the 18th instant.

JOHN EDWARDS, Esq., in the chair.—The meeting, which was of a prolonged nature, possessed but little interest, being principally confined to a dissertation on points of no general interest, and which have already been fully discussed in our columns.—On opening the proceedings, the CHAIRMAN, at the request of a shareholder, read the minutes of the preceding meeting, whereby it appeared that the present adjourned meeting was held for the purpose of receiving the opinion of counsel on the question arising, as regards Mr. May's claim to the sett, by virtue of a lease granted by Mr. Lethbridge in 1826, of which it appeared there was ten months to run. Previous, however, to the case, or opinion, of counsel being read, it was submitted to the meeting, whether any parties should be present, who might not hold an interest in the undertaking.—Mr. THOMAS, who has, on former occasions, presented himself and taken an active part, at once stated that he, although not a registered shareholder, was present, as representing the interest of a party holding 118 shares, whose proxy, in writing, he submitted.—The CHAIRMAN referred the document in question to Mr. G. H. Snelk, solicitor of the company, that gentleman declared his opinion that the instrument could not be acted upon, inasmuch that it was unstamped, and in its character of too general a nature; and, moreover, that the party nominated was not an adventurer.—This question, which is one of importance, as effects mines carried on on the cost-book system, caused remarks pro and con, as to the rights of adventurers or their representatives; this question, however, in the end, as to Mr. Thomas's right of being present as the representative of an absent shareholder, being determined in the negative, that gentleman withdrew.—The case referred to, with counsel's opinion, was then read at length; from the latter, it appeared that in consequence of the original lease (Mr. May) not having worked the mine, or performed the several covenants in the lease, the same had become forfeited, and hence any grant made to the present company was perfectly valid. The opinion thus expressed gave evident satisfaction to the proprietors assembled.—A desultory conversation ensued, in the course of which the CHAIRMAN rose, for the purpose of meeting

certain charges which had been preferred against him, and also to explain his conduct, so far as he had been attacked, and to put the meeting in a position as to the facts relating to the transactions which had been brought under notice.

The CHAIRMAN, in his remarks, adverted in strong terms to the course pursued by Mr. Thomas, and was proceeding to enter on several points wherein that gentleman was connected, when he was called to order by a PROPRIETOR, who suggested that, in the absence of that gentleman, he felt assured the chairman would consider that remarks of such a nature were, if not uncalled for, at least misplaced on such occasion. This remark having led to further observations, the proprietor referred to at once charged the chairman with having taken 500 shares, which, putting the amount at 5½ per share, was equal to 2500£, for which he had not advanced 1d.; that the mine had been purchased for 1000£, or thereabouts, and, that the chairman, with others of the financial committee, had not paid one farthing, while the *bona fide* shareholders had given after the rate of 10,000£ for the mine.—The CHAIRMAN, in reply, maintained his right to hold the interest referred to, even on the terms of which complaints had been made.—The meeting expressed a concurrent opinion, and a resolution was, subsequently, passed in the most laudatory terms, expressive of the opinions entertained by those present, as to the conduct of the chairman, who was requested to retain office.—A letter having been read from the agent of the mine—stating that a fifth lode had been cut, six inches big, with black and yellow ore, having a south underlay, which was considered promising—and, furthermore, a protest from Mr. May, as the proxy or representative of Mr. Wray, the meeting adjourned.

[It is only right to state that, in both the proceedings, a unanimity of feeling on the part of the proprietors prevailed, and that no difference of opinion appeared to exist but such as might, by a reference to any two or three concerned, at once bring the questions in dispute to a close, without a recurrence to these unpleasant and unprofitable discussions.]

TING-TANG MINING COMPANY.

At a meeting of adventurers, on the 28th ult., the accounts were presented, showing the tatwork and labour cost for July, August, and September, to amount to 1453£. 2s. 6d.; the tribute cost, 19£. 17s. 7d.; merchants' bills, 1839£. 6s. 4d.; charged towards new engine, 1200£; balance of last account, 3054£. 3s.—total, 7666£. 9s. 5d.—On the credit side, there appeared, by tin sold (less dues), 41£. 18s. 11d.; call of 15£. made at last account, 3840£.—together, 3881£. 18s. 11d.—leaving a balance in debt, 3784£. 10s. 6d.—Resolutions were passed that the accounts be allowed, and that a call of 15£. in two instalments, be made, payable on the 13th days of December and January.—It was also resolved, that the cost of the engine having so far exceeded the price originally contemplated, a committee, consisting of Capt. Richards, Mr. West, and Capt. Clymo, be appointed to examine into the same, and to report their opinion at the next meeting of adventurers, to be held on or about the 28th of next month.—The following is a copy of the agents' report presented to the meeting:—"The labour cost for these mines for July, August, and September, has been 1453£. 2s. 6d., and since our last report we have drained the water from the sixty to the 100 fathom level; cut down the engine-shaft about twenty fathoms; put in new balance-rod, and completed all our pump work, rods, &c., to the 100 fathom level; cleared and secured John's shaft to the ninety fathom level; cleared and secured Skinner's shaft to the eighty fathom level; cleared and secured the eighty fathom level fifty fms.; cleared and secured the sixty fathom level 130 fathoms; cleared and secured on the old lode and cross-cuts at John's shaft sixty fathoms; cleared on Roache's lode, in various levels, 100 fathoms; cleared, timbered, and secured Jeffery's shaft from surface to the sixty fathom level, and various other work. In consequence of the shafts and levels being found in such a dilapidated state, it has required a much greater time and expense than we anticipated, to get them into a proper state for development. We have cross-cutted the lode at the twenty fathom level at Shatter shaft, and found a large gossan, but this level is not deep enough for ore on so large a lode. Since our last report we have sunk George's shaft from the shallow adit to the deep adit on the Wh. Squire Flat lode, to make it more convenient for sinking below, and we have since sunk it seven fathoms below the deep adit. The lode is four feet wide, very promising, with good bunches of rich ore, and improving in depth; and we shall immediately commence driving a cross-cut to intersect it at the fifty fathom level. We are driving a cross-cut south, at the forty fathom level, west of Skinner's shaft, to intersect the great western lode, which we expect to cut in less than a week. We are also driving a cross-cut at the sixty fathom level, to intersect and prove the same lode. We are now sinking a winze in the bottom of the eighty fathom level, where we have a very large lode, with good bunches of ore. In the sixty fathom level east, on the old lode, we have some kindly appearances and rich veins of copper. The fifty fathom level, driving west on Roache's lode, is a good lode, three feet wide, and producing a good quantity of ore in soft ground. Jeffery's shaft, sinking below the sixty fathom level, on Roache's lode, is two feet wide, producing good stones of ore. This shaft is in that part of the mine called "Wheal Moyle," and going down into all new ground. We shall now commence to drive a cross-cut at the ninety fathom level, to explore all the lodes in that part, where, it is the opinion of every miner, large quantities of ores will be found. You will please to observe, we sampled 100 tons of ores on Wednesday last, which we suppose is worth from 4£. to 5£. per ton, and have now about twenty pitches working at high tributes, and will raise about the same quantity against our next sampling (two months), but we must get our deeper levels drained and cleared before we can expect to have a very large increase in our samplings, unless our cross-cuts in the forty and sixty fathom levels should prove productive, going towards the great western gossan. Should those two levels not prove to be deep enough for the ores, we have no doubt but the deeper levels will, and prove as successful as the most sanguine shareholder ever expected."

WHEAL MARY ANN MINE.—At a meeting of the adventurers of this mine held at the White Hart Inn, Menheniot, on the 16th inst., P. E. D. LYNE, Esq., in the chair, it was resolved that the accounts, which showed a balance of 123£. 6s. 2d. due from the adventurers, be allowed and passed; and that a call of 1£. per share—excepting those now standing in the names of Ann Tyeth, Mary P. Hawker, and Ann Frost—be now made for the purpose of discharging the existing balance, and for other purposes of the mine, and that the amount of such call be peremptorily paid to Mr. Peter Clymo (the purser), within one calendar month; it was also resolved that the following persons be appointed a committee, to examine the accounts previous to each meeting:—Messrs. Kittow, N. Hare, jun., J. Carpenter, J. Cock, and J. Sobey.

MINE ACCIDENTS.

United Mines.—As J. Peters, of Chacewater, was working at the 150 fathom level in one of the shafts, a scale of ground fell, and severely crushed him, but, by the prompt attention and skilful treatment of the surgeon to the mine (S. Arthur, Esq.), we are glad to hear hopes are entertained of his recovery.

East Wheal Rose Mine.—As a miner, named Phillips, was descending the shaft, he missed his footing, and was precipitated down the pit, but, fortunately, his fall was arrested by a plank; the poor fellow was much injured, having broken several ribs.

Charlestown Consols Mine.—W. Woolcock was killed by a fall of rock.

Wheal Vor Mine.—J. Richards died suddenly while employed underground. **Baleswidden Mine**.—C. Ellis was killed here by the fall of a plank into the shaft where he and three others were at work. Much blame appears to be properly imputed to one of the landers of the mine (J. Carter) for gross inattention to directions.

St. David's Colliery, Llanelly.—J. Thomas, of Llangennech, was killed here by a basket of coal falling on his head.

Killingworth Colliery.—A fortnight since, the boiler attached to the engine (the bank) exploded with tremendous violence, blowing down the engine-house, and burying two men in the ruins.—One of them, J. Stewart, was killed; the other was so severely burnt, that little hopes are entertained of his recovery. The boiler was old, and is supposed to have been in a bad condition.

Dixon's Green Colliery, Dudley.—As Z. Haden, 10 years old, was walking near a pit shaft, his foot slipped, when he was precipitated to the bottom and killed.

Hart's Hill Colliery.—B. Rollason was killed by a fall of coal.

Garn-ar-ryw Pit, Blaenauon.—D. Davis was killed by a fall of coal.

Dairy, N.B..—G. Murchland, of Kilmarnock, was killed in a pit at Pitton.

Duffield.—W. Collis, aged seventy-three, died suddenly while working in a pit at Snelston.

St. Helen's.—As J. Bradshaw, an underlooker, and three miners, were descending a pit at Messrs. Bourne and Robinson's colliery, the tub caught the one ascending, when Bradshaw was knocked out and killed.

Aspull, near Bolton.—J. Shepherd, W. Shepherd (father and son), and W. Butterworth, were killed in one of Earl Balcarras's collieries by an explosion of fire damp. Another miner, named T. Seddon, was also so much injured that he is not expected to recover. Sad reflections were cast by the coroner on the general want of management at the works.

Explosion of a Steam-Engine Boiler at Willenhall.—An explosion of a steam-engine boiler, attended with loss of life, injury to sixteen or seventeen persons, and considerable damage to property, took place, we regret to state, at a colliery belonging to Messrs. G. H. Thornycroft and Co., near Willenhall, on Monday last. The erection of a new engine, for the purpose of draining mines, belonging to Messrs. Thornycroft and Co. had been in progress for some months past, and on Monday, every thing being complete, it was decided to set the engine to work. Mr. Thornycroft and his partner Mr. Perks were present to see the working commence, many workmen, and some persons from the neighbourhood, wishing to witness the starting of the engine. Mr. Thornycroft, with John Reece, the engineer, were standing near the boiler. Mr. Perks near a hovel at a short distance, and other persons round about, when, owing, it is supposed, to the safety valves of the boiler ceasing to act, an explosion, attended with the fearful results we have mentioned, suddenly took place. Mr. Thornycroft was badly scalded and bruised, and Hood, an engineer, who had gone

from curiosity, to witness the starting of the engine, was found dead; Reese, the engineer, had both his legs broken, and was also much scalded. Mr. Perkins and Mr. Evans, a relation of Mr. Thorneycroft, were also hurt, but not so much as some others, about sixteen persons being more or less injured. The report from the explosion was by no means loud. Francis Henry, a boltmaker, of Willenhall, who happened to be present, is among the more seriously injured. The boiler was an old one, but had been thoroughly examined, and appeared quite free from defect, and it is somewhat remarkable was the only one used by Messrs. Thorneycroft and Co. not manufactured by themselves. From seventy to eighty persons were on and in the neighbourhood of the premises, several of whom almost miraculously escaped injury.—*Waterhampton Chronicle.*

BOTALLACK MINE.

Sir,—In your paper of the 6th instant, I perceive some strictures on the management of this mine, from which I differ in opinion, as such doings as you recommend would lead to too much sacrifice for the sake of appearance. If mines were worked for no other purpose than share-jobbing, then it would be well to keep things on so regular and smooth as possible; but, where they are mining for tin, and the profits arising therefrom, it certainly ought to be kept or sold for the best advantage, and if the miner saw that, by keeping his tin a month or two, he could get from 2l. to 5l. per ton more for it (as has been done lately), who can blame him for doing so. I have myself suffered much (as a labourer) from the systematic way of doing things which you recommend, and I hope in future you will advocate a better system. I am sorry to say, that most of the tin mines of this county are in such a state that they cannot avail themselves in this way of the rising in the price of tin, for a stoppage in the sale of tin would produce a corresponding stoppage in the payment of miners' wages and merchants' bills, and I reckon there would be more difficulty in pleasing the miners without money than even a like number of expecting shareholders. I know the man at the head of affairs in Botallack Mine is too well acquainted with the tin trade, and too much interested in the mine, to sacrifice 2l. or 4l. per ton on the price of his tin, for the sake of such reasons as are mentioned in your paper, and I hope every one who manages a mine will use their own discretion, and disregard such nonsense.—*A CORNISH MINER: Dec. 17.*

[ADVERTISEMENT.]

THE MINING ESTATE OF LAMERHOE.

Sir,—The shareholders of Lamerhoe, and the committee of finance of that estate, are certainly the most extraordinary persons ever yet associated for mining purposes. When I met them, on the 20th November, I made a proposition to this effect—"that they should elect, whether or not they would take upon themselves the agreement of Mr. Williams with Mr. May, or whether that gentleman should continue to hold the right and interest of Mr. May, as an independent party." My motive for making this proposition was, that, as the shareholders had not been a party to the agreement with Mr. May, they might have no excuse for reiterating their accusation, "that I had made an agreement for Mr. Williams's benefit, in which they did not participate." The *Herefordshire* falsified this simple proposition, and tortured it into a demand, on my part, that the shareholders should pay me 150l.; and he stated such interpretation of my offer to have received the sanction and approval of the shareholders present at that meeting. In consequence of such misinterpretation, I wrote to the committee formally, withdrawing my proposition, and declining to meet the shareholders, except accompanied by my solicitor and a shorthand writer. Immediately upon this announcement of my determination not to attend the meeting, convened for the 18th, a Mr. Henry Smith, a friend of Mr. Snell's, and a most zealous partizan of the chairman of the committee, inserted a letter in your Journal, intimating "that I had declined to meet the shareholders of Lamerhoe, because I was fearful of hearing the reply which Mr. Edwards and Mr. Snell had prepared to the gross charges of fraud and deceit which I had made against those two gentlemen, when they were present at the former meeting, but to which I gave them no opportunity of reply, as I spoke against them," and consumed the day in matters of crimination. Upon reading this threat, I determined to afford those gentlemen an opportunity of disproving the statements I had made. I determined to be present at the meeting on the 18th; and as Mr. May had written to me, expressing his approval of my conduct on former occasions, and requesting me to attend as his proxy at the ensuing meeting, I accepted the appointment, and he sent me a power of attorney, to act in his behalf, according to my discretion, and which power of attorney I considered, and yet consider to be, a perfectly legal and customary instrument under the cost-book system. Mr. May is a perfect stranger to me—he is a shareholder in the mine to the extent of 118 shares, purchased of his brother-in-law, Mr. Lethbridge, the landlord of Lamerhoe, from whom I have no doubt, he obtained his knowledge of all the facts of this most extraordinary dispute. Mr. May's approval of my previous conduct was strongly expressed in the letter which accompanied the power of attorney; and it was the strongest evidence he could give, that he considered—as far, at least, as the statements concerning Mr. Lethbridge, and as far as my desire was manifested for a reconciliation of disputes—that I had not warped facts from their true position, and that my measures were, in his opinion, likely to tend to the general good.

Armed with this power of attorney, I did not provide myself with a power to represent the 428 shares belonging to my son, but I proceeded to the meeting as the representative of Mr. May; and I certainly expected, by being present, to listen to the charges of the charges I had so repeatedly made against Mr. Edwards and Mr. Snell, without being able to exert one word in reply, that I should have afforded those gentlemen much gratification. Judge, then, Sir, my surprise, when I found that my presence was so distasteful, that neither of those gentlemen would enter upon their intended justification whilst I was present! Mr. Edwards proposed that no person, not being a holder of shares, should be allowed to attend the discussion, and I was rendered the power of attorney sent me by Mr. May. Mr. Snell, the solicitor of the company, declared that it was not a legal instrument, that it was not upon a stamp, that it was a general power of attorney, and had not reference to that meeting only. I showed that it had reference to that meeting expressly, but that it also extended to other adjourned meetings, should such be proposed. The objection of Mr. Edwards and Mr. Snell (the solicitor of the company) was held by the shareholders present to be valid: it was voted, "that Mr. Thomas be required to withdraw,"—and, having entered my protest, on the part of Mr. May, against my resolution that may might be taken in your absence, which was declared when you rather say) submitted to the decision of the meeting.

I am informed that, after I left, Mr. Edwards and Mr. Snell entered into a justification of their own conduct, and called upon the shareholders to record votes of confidence in their favour. It certainly was much to be lamented, after the threat of Mr. Smith, in their behalf made, "that I should not dare to present to hear their overbearing reply," that I was not permitted to hear their explanation, or to witness their triumph! If the shareholders had said to me, "Mr. Thomas, you have no right here, we tolerate your presence in order that nothing might be said in your absence, which we might venture upon when you were present to reply," I should have acknowledged the extraordinary courtesy, and should have been ready to accede to the shareholders, that they had made me their debtor by that one act of civility. But this did not suit the purpose of Mr. Edwards and Mr. Snell. I had received that which may be considered both a threat and an invitation, leaving me to suppose they desired me to be present; and when I responded thereto, by attending at the meeting, the matter could not be broached, until I had been ordered to withdraw. Of that which I have said, I am yet ignorant. I am yet ignorant that one or two shareholders, upon Mr. Edwards indulging in statements never previously ventured, did point to the want of honour in this taking advantage of my absence; and I have heard, they expressed their surprise at his animosity towards me, when it was known that he, Mr. Edwards, sat as chairman of that committee in virtue of the 500 shares, of which 1, as the agent of Mrs. Williams, had made him a present, for doing nothing more, according to his own showing, than playing off a most dexterous piece of cunning and deceit; and I have heard that the same charge of illiberality and injustice was made against Mr. Snell, who held 500 shares upon the same terms, but who was not so well fed him. All this, however, was quite beside the acknowledged subject of the meeting. The shareholders were to take counsel's opinion on the safety of their own position, under the lease to Mrs. Williams, Mr. Edwards, and Mr. Snell; and upon the probability of Mr. May being able to establish his claim for priority of occupation. I understand they were of opinion that their tenure was perfectly satisfactory, and that they resolved to decline accepting the proposition made by me, on the 20th of last month, for the assignment of claim. I am happy to hear such an opinion has been given upon the stability of the lease to Mrs. Williams, Mr. Edwards, and Mr. Snell; and I am also pleased, that they decide to stand perfectly aloof from the engagement between Mr. Williams and Mr. May. It is a pity such a decision was not given months ago. From the day upon which Mr. May set up his claim to the estate, I have been struggling to bring this matter before them, and I think I may, whatever the result, be allowed to say they have had the opportunity of electing their position.

Now, and I accordingly regret, that the very important subject of the lease of Lamerhoe has degenerated into a miserable about the division of shares, and the appropriation of money arising therefrom. But this has been the fault of Mr. Edwards, Mr. Snell, and other gentlemen of the finance committee, who barred my access to the shareholders for several months, because the guilty consciences of Mr. Edwards and Mr. Snell led them to infer, that the matter of the lease could not be investigated without opening points necessitating acts which their partisans call "taking care of themselves," but which I call "dishonesty," because the gentlemen of the committee were persuaded that my only object was a question of money, with which they had nothing to do; because these gentlemen of the committee were thus induced to fight against a person who never gave them cause, except that cause be found in a constant endeavour to serve the interests of the mine, and all these causes tending to bring about the very result they at first were intended to prevent. I am informed it was stated at the meeting, they had cut the Wheel Maria lode in Lamerhoe! At this I also rejoice; and, now that it is known that counsel have declared the title is beyond dispute, I have no doubt but the shares will evince their elasticity, by obtaining their proper position; for, certainly, if the indications of the sett be taken into consideration, their true value is far above any sum which I have yet heard as having been obtained.

Having now done with the lease of Lamerhoe, I trust, Sir, you will permit me to reply to the very important letter of Mr. Snell, which appeared in your paper of Saturday last. The substance of which was, to ask you whether I, in my late charges against him, (as taken in connection with a late affidavit of mine, relative to my pecuniary affairs) had committed perjury. I think I had better relieve you of the burden of the reply. Mr. G. W. Snell, I have no doubt, asks the question in his happy ignorance of the term. He had better go again to school, and for his preceptor select his father; and if he cannot explain to him what the term implies, I know no person in Cornwall who can. Mr. Snell, in the letter to which I allude, after asking you "if I have committed perjury," infers that I have no right to demand of him a settlement of the cash account between him and the party, whose agent alone I was in purchasing the lease of Lamerhoe; because, for certain reasons, I was obliged to claim the protection of the insolvent Court, and there stated myself to be the agent of Mrs. Williams. This is an old thread of Mr. Snell's, and it is the reason why I persist in making Mr. Snell account for money so received, or why I give him an opportunity of fulfilling his threat, and shewing to "the public" the reason why he refuses to account. Mr. Snell says Mr. Edwards and his brother have justified the correctness of his account! Would the testimony of parties partaking in the dispute be deemed a sufficient reply?

But Mr. Snell goes further. When I first required accounts from Mr. Snell of moneys received and expended in his capacity as solicitor, I received a gentle intimation that, if I asked him to relax his grasp upon the money he had obtained, he would stop my mouth by bringing before the public the circumstances and result of a late suit which, he the last three years, I had conducted against a person who owed me 1350l. upon an agreement, to which I ultimately failed to prove his signature, and for the enormous costs of which I, at the time Mr. Snell joined me, told him I intended to seek the protection of the Court, should the de-

fendant stand up judgment. This threat of Mr. Snell had an effect directly contrary to that intended. Had the money received by Mr. Snell been due to me, as a principal, instead of being due to me only as an agent, one week should not have elapsed ere I gave him an opportunity of putting his threat into execution.

Mr. Snell has, however, now, in a public Journal, made good one portion of his threat; and he has, to my knowledge, through private channels, been circulating his version of the trial, which obliged me to seek the protection of the Court. I have never shrunk from all possible publicity being given to the circumstances of this trial; on the contrary, I have courted inquiry into its merits during the three years it was being conducted; I have sought to bring the conduct of one good or impartial man, it has drawn to my side persons whom, but for this unparalleled struggle, I should never have known; who, on the first blush, could not understand its intricacies; but who, upon the present investigation, gave to me their unbounded confidence. The object of Mr. Snell's protest, and his threatened disclosure, cannot be misunderstood; I am largely engaged in advancing that which I consider to be legitimate mining in Cornwall and Devon, and Mr. Snell is desirous of giving a check to my exertions, by creating a want of confidence. Mr. Snell's attempt will, I believe, prove abortive. My engagements are such, as carry me beyond the sphere of Mr. Snell. I am not a "jobber to share." I do not take stock, and publish prospectuses, for the purpose of selling off unimportant shares, for which I have paid no consideration. If I approve of a mine, I purchase the majority of the shares, and set the mine fully and completely to work; or I take stock of which I approve, and put them to work; but in no instance have those shares, or any portion thereof, been in the market for sale. Nor is it intended that such shares shall be in the market until the mine are fully paid for, and the mine are in a position to pay for the shares, and I intend to follow such plan, I believe I am beyond the influence of the Snells, and entirely out of the walk which they have chosen for many years.

The *Herefordshire* Herald, also, fighting the battle of Mr. Edwards and Mr. Snell, says, it is quite right the shareholders in Lamerhoe (and, I have no doubt, he also means "the public,") should know who I am. An innuendo is always a more certain mode of injury than a statement of facts, and I shall, therefore, with your permission, supply the public with full information which they shall be able to verify, and I do not fear the withdrawal of any just man's confidence in consequence thereof.

In the year 1841 I entered into an engagement with a party to become his agent, to take upon myself responsibilities, by holding leases in my own name for his use and benefit, and by establishing a certain business, from which, if profitable, he was to give me a certain remuneration. I did all the matters which I engaged to perform. I established a business, which made him a profit of 50,000l. in two years, but he refused to pay me the consideration agreed upon. The agreement was written by me and signed by him; but, in consequence of my not being satisfied, I sought to have the agreement annulled. After repeated demands for payment of the consideration, he threatened, if I sought to enforce the agreement, he would declare it to be "a forgery." The debt claimed was 1350l., and upon the same day that he made this threat I commenced an action against him upon the agreement which he threatened to repudiate. He instituted counter actions in Chancery, for purposes of delay and ruinous costs. The cause was ultimately tried in June, 1844. I led to prove his handwriting, and the verdict was in his favour. I asked for a statement of accounts, I sought to have a new trial. I obtained a rule nisi, but, upon the hearing to make that rule absolute, false affidavits were put in, and the rule was discharged. I proceeded in the Criminal Court against the party for perjury, obtained a true bill, but in consequence of a flaw in the indictment the party escaped, and has since evaded my search, by concealment, or absence. I thus became liable for all costs, which upon the side of the defendant were 1900l. For these costs they entered up judgment, and I passed through the Court on the 23d September last.

Having failed in this action for account, I am threatened, if I require Mr. Snell to account for moneys received in Lamerhoe, to anticipate Mr. Snell's development, and am quite ready to meet him or any other person on that ground. I held the repudiated document in the face of the repudiator till the day of his death, and I publicly required him, if it was not his signature, to settle the question by making the charge in its proper and consistent form. He, however, chose the safer course; he cast the burden of proof upon me, I failed, and I am not ashamed of that action or the consequences thereof. Having failed in this action for account, I am also ready to meet Mr. Snell. I became the agent of Mrs. Williams under a written agreement for taking mining leases in December, 1844; the estate of Lamerhoe was taken for her in my name. When Mr. Hugh Snell proposed to join me, he knew all these circumstances; he knew the verdict was against me, and he knew also that I should apply to the Court, if the defendant entered up judgment. In this position, Mr. Snell sought me, and proposed to join me in selling shares, in my own name only, and it was stipulated that his name should not be known. Having failed in this action for account, I am also ready to meet Mr. Snell. I became the agent of Mrs. Williams under a written agreement for taking mining leases in December, 1844; the estate of Lamerhoe was taken for her in my name. When Mr. Hugh Snell proposed to join me, he knew all these circumstances; he knew the verdict was against me, and he knew also that I should apply to the Court, if the defendant entered up judgment. In this position, Mr. Snell sought me, and proposed to join me in selling shares, in my own name only, and it was stipulated that his name should not be known. Having failed in this action for account, I am also ready to meet Mr. Snell. I became the agent of Mrs. Williams under a written agreement for taking mining leases in December, 1844; the estate of Lamerhoe was taken for her in my name. When Mr. Hugh Snell proposed to join me, he knew all these circumstances; he knew the verdict was against me, and he knew also that I should apply to the Court, if the defendant entered up judgment. In this position, Mr. Snell sought me, and proposed to join me in selling shares, in my own name only, and it was stipulated that his name should not be known.

14, Poultry, Dec. 19.

FREDERICK S. THOMAS.

WALKER'S RIDDLING MACHINE.

TO THE EDITOR OF THE MINING JOURNAL.
Sir,—Knowing your great desire to give publicity and countenance to any invention calculated to facilitate commerce, I respectfully request the enclosed testimonials, and remarks on my Patent Riddle, may be inserted in your Journal.
ROBERT WALKER, Colliery Viewer.
Gerard's-bridge Colliery, 13th Dec., 1845.

[COPY.]
To Mr. ROBERT WALKER, Gerard's-bridge Colliery, St. Helen's.

Dear Sir,—I have great pleasure in annexing you copies of testimonials on the efficiency of your Patent Riddle, received from John Fletcher, Esq. of Ladyshore Colliery, near Bolton-le-Moors, and Mr. George Forster, the colliery viewer at Standish Colliery, near Wigan. Such testimony, I feel assured, will be properly appreciated by all those who know the respectability and long experience of the parties who have tried your riddles; and I cannot doubt, that they will, ere very long, be generally used by all extensive coal proprietors, both in this and the adjoining counties. The one I sent to Messrs. Hird, Dawson, and Hardy, of the Low-moor Iron-works, Yorkshire, is not (I believe) erected yet; therefore, could not expect a testimonial from them at present; but I may say, that Mr. Dawson, of the above firm—who ranks high for his general knowledge of such things, and in whose judgment I would place the most implicit confidence—expressed, when here, his decided approval of its principle and utility.—Congratulating you on your success,
I remain, dear Sir, yours, obediently and truly,

ROBERT DAGLISH, Jun.

[COPY.]
Ladyshore Colliery, near Bolton, Sept. 9.

Sir,—After three months' trial of "Walker's Coal-Riddling Machine," I have great pleasure in stating, that I consider it a valuable invention, that it does its work thoroughly, and with a very small amount of breakage. (Signed) JOHN FLETCHER.
To Mr. R. Daglish, Jun., St. Helen's Foundry.

[COPY.]
Standish Colliery-office, near Wigan, Nov. 6.

Sir,—Pardon my seeming neglect, in delaying so long to give you my opinion relative to the working of "Walker's Riddling Machine," which Mr. Taylor has had erected at the Standish Colliery. It has been at work about six weeks, and I have given to it a great deal of my time and attention, so that I might ascertain its utility over those screens we have had in use for some time past. I must confess that it far exceeds all other methods of screening, that I have had the opportunity of seeing in the coal districts of Northumberland, Durham, Yorkshire, and Lancashire. I find there are many advantages to be derived from the adoption of the cylindrical riddle, over those in general use: its revolving motion completely prevents the breakage of the coals, and makes a complete separation of the coal from the riddle. Besides, there is a great saving in time and labour, and I have no doubt but one riddle, properly erected and worked, would effectually screen four hundred tons of coals and slack in ten hours. When such advantages are to be derived from the adoption of this valuable invention, may we not reasonably expect, that "Walker's Patent Riddling Machine" will eventually surmount all prejudice, and supersede all other modes of riddling and screening coals in use.

I am, Sir, your obedient and humble servant,

To Mr. R. Daglish, St. Helen's Foundry.

GEORGE FORSTER.

In addition to the foregoing testimonials, Robert Walker begs respectfully to invite an inspection of two of his riddling machines, which have been at work at Gerard's-bridge and Cowley-hill Collieries, near St. Helen's, Lancashire, for upwards of thirteen months. Applications will be promptly attended to, by addressing me at St. Helen's, or Mr. Robert Daglish, of St. Helen's Foundry, Lancashire.
(Signed) ROBERT WALKER, Coal Agent, St. Helen's.

ALVIGGAN TIN MINE.—Sir: I regret that a mistake should have arisen respecting the name of the tin mine about which I made inquiries in last week's Journal; it is called "Alviggan Tin Mine," situated, I am told, near St. Austell.—*A CONSTANT READER: Exeter, Dec. 17.*

COPPER NEAR BRIDGWATER.—The copper mine at Broomfield, about five miles from this town, is progressing most auspiciously. With a steam engine of only twelve horse-power, and at the depth of no more than sixty-four feet from the surface of the ground, a ton of capital ore is raised from a very small shaft, at every six feet depth of working, and this, without pursuing the lode of ore horizontally. As it is well known by scientific geologists and practical miners, that every increased foot of working in depth adds to the proportionate excellence of the ore, both as to quantity and quality, this enterprise promises to be one of extraordinary profit. The lode is near five feet in width. The present engine in work, it is supposed, will carry the operations down to forty fathoms below the adit level, when an engine of augmented power will become necessary. A considerable number of additional miners are about to be engaged, and the undertaking altogether presents the most decisive evidence of ulterior prosperity.—*Dorset County Chronicle.*

COAL FOUL AT THE LICKY, NEAR BROMSGROVE.—At the new Rose and Crown Inn, on the new road from Bromsgrove and Birmingham, and on the Birmingham side of the Licky Hills, there was a well, five feet deep, with a pump in it, which supplied the house with water; this water was brought by means of sufling tiles from a distance of two fields; and in consequence of the water being "brackey," and sometimes of a reddish colour, Mr. Cottrell, coal dealer, Northfield, the owner of the inn and adjoining land, determined to sink the well deeper, and if possible to find a spring. The miners commenced sinking; they had blue clay to the depth of eighteen feet from the surface, then a stratum of limestone one yard thick, a thin stratum of pipe-clay, a darker clay about three yards, stratum of ironstone, a thin stratum of soft earthy coal like slack or small coal, and next a stratum of good coal three feet thick. The coal resembles the Bilston coal, burns well, and makes very little ashes. Underneath the coal was a sort of Vandyke-brown-colour cinder kind of marl; and now they are in a blue rock stone, and underneath that rock they fully expect to find thick bed of coal. The above coal will make good coke; the shaft of the well is now fourteen yards deep. Mr. John Rogers, plumber and glazier, Bromsgrove, brought a large lump of this coal to Bromsgrove, and put it on the parour fire of Mr. Charles Webb, King's Head Inn, before a highly respectable company, who approved of its quality. The coal burned remarkably well, very clear, and with very little ashes. The distance of the locality from Bromsgrove is four and a half miles.—*Worcestershire Chronicle.*

REPLY TO MR. SLOPER ON THE ELIGIBILITY OF MAURRAS'S FILTER FOR THE SUPPLY OF PURE WATER.

BY ALFRED BURT.

When we dwell upon the vast importance of the question—supply of pure water to the metropolis, in a national point of view—of a general development of the plans adopted by the water companies—and the numerous schemes of filtration projected by various individuals, and proposed to Parliament—together with the innumerable machines, which annually spring into existence, intended to distribute pure water at a reasonable rate—we were not insensible that we approached a subject on which the vendors, intrusted with the sale of an article of consumption, are naturally most sensitive; and that to deal with the question on its own merits, in reference to their bearing on the public interests, was to expose us to the obloquy of public bodies, whose interests are involved in connexion with an element so necessary to subsistence as water.

We were not, therefore, unprepared for the diversity of opinions expected, respecting the machines invented for the purpose of filtration, and the efforts to impose them upon the credulity of the public; and our views of the question have in no manner been weakened, from the attempt made by Mr. Sloper, in the *Mining Journal*, of the 8th ultimo, to reply to our paper on supply of pure water to the metropolis, wherein we denounced the principle of Maurras's filter, and its eligibility to purify water, or of the susceptibility of his machine to work with ease and regularity on a large scale. It is easy to discover, in the letter of Mr. Sloper, more of the feelings of interests, than the desire to benefit the community. The rancour of sentiment, the meeting epithets cast upon our allegations of an impracticable machine, has more the tendency of individual malice, than the purpose of attaining the legitimate object—supply of pure water; and it is not the first time that the eligibility of machines, designed to render transparent and potable, impure fluids, has been vehemently and erroneously insisted on by their projectors, determined to carry out the principle, with no object in view but that of a mercantile speculation. The desire of Mr. Sloper, to put into operation a machine which may be considered in the light of an utopian scheme, would naturally lead this gentleman to apprehend that, by our exposition of the principle, the utility of Maurras's filter may become questionable; and, however it would have favoured this machine, if we had merely attacked filtration in principle, and passed in silence Maurras's filter, individuals and public bodies would have reason to complain, that we had attacked their project of filtration, while we left unscathed a machine equally inapplicable for the object designed, as the schemes we had denounced. We do not question the absolute right of Mr. Sloper to defend his views of a machine, in which, we presume, he has a direct pecuniary interest; but as the principle of the filter is not founded upon public advantage, nor essential for the public health, the value of that interest must rest on the capability of the filter being made available for a constant and pure supply of water, which its inefficiency, inconvenience, expensiveness, and impracticability, has contributed to aggravate Mr. Sloper into the defence of an invention, which (it is evident) does not possess the requisites for a continuous and practical system of filtration. But we question how far it is prudent to depart from its legal functions, by a perversion of argument so manifestly untrue, and dangerous to the desideratum of an invention which has for its object the purification of water. We believe we are as solicitous for the pure supply of water, as Mr. Sloper, or any of his co-adjutors of the innumerable schemes designed. We are so, not only for the sake of the health of a populous community, but for the sake of the public, whose opinions Mr. Sloper has attempted to influence, by statements based upon light or inefficient grounds. He has not, however, shown himself to be influenced by the same sentiments. On the contrary, he seems to indicate an intention to mislead the public, by a statement of that machine which he is desirous the public to adopt—thereby, realise his views, and add lustre to his own reputation. But, as this gentleman has undertaken to attack us personally, to denounce the accuracy of our views, and attempted to depreciate the value of our experience, we hope to be permitted to expose the principles and motives on which the opinions of Mr. Sloper are based. We by no means wish to detract from the credit of any improvement which may have been effected by the invention of Maurras; and, though our strictures may seem, at first sight, to indicate an intention to mislead the public, we must not forget, that the real aim of our remarks, is not to cast obloquy upon a machine, which, if put into operation on a large scale, would prove equally disadvantageous, not only in the quantity and quality supplied, but in the consequent advance upon the average amount of the rental. Without referring, therefore, to the derogatory imputation, that our statements were unsupported either by reasoning or evidence, we may observe, that this assertion might have passed as a stupid and groundless calumny, if it had not been supported by a statement, which we have shown to be a perfect invention (which nothing in this world is, or can be, more repugnant to our opinions and designs)—that we had not fairly examined the filter in its practical workings, nor informed ourselves respecting the machine, how long it had been at work, and how it effected the object of its inventor. We have yet to learn that Maurras's filter is a perfect invention, capable of being adopted as a practical and sound system of filtration, which Mr. Sloper has failed to prove. What we advanced will be borne out by any disinterested and competent person, who has minutely examined the several patents as in practice at various works, both in our own and other countries, and will be found that our opinions have not been lightly formed, but based upon the experience afforded us by the most distinguished chemists and hydraulic engineers—that the results of filtering machines have invariably shown a rapid decrease of its product, and the ultimate total obstruction of the filters. We shall not reply separately to those passages in Mr. Sloper's letter, which would involve us in the uninteresting controversy of being led into the theory of filtration. However, we may acknowledge theoretical principles to be abstract, we must establish them in practice, and shall, therefore, make but few observations on the principal objection of Mr. Sloper to our views on Maurras's filter, which appears to be the opinions entertained on the character of the material employed—viz., sand as a medium, for the purpose of filtration. We should think that some cogent argument should be brought forward to satisfy us, that the filtering medium adopted by Maurras really possesses the advantages attributed to it by its projectors. What is the argument Mr. Sloper has brought forward? It is simply this—"If there is one substance more fit than sand for the purpose of filtering, it is sand." Now, if Mr. Sloper have no other argument than this—this mode of reasoning is the most fallacious that was ever heard on a public question, and we will meet the objection on its own merits; for not only are we prepared to maintain that the simple mechanical operation of Maurras's machine is an unsound theory, but that sand possesses, in its physical constitution as a filtering medium, a peculiar liability to obstruction, and cannot tend in any way to a sound system of filtration. We will first observe, that sand is in its nature of a shifting and loose material, impracticable to contain in a fixed position, and consequently, cannot be adapted as a medium for filtering water. We repudiate, then, the fallacy of Mr. Sloper, that sand will remain piled and firmly compressed in the machine, and immovable as a solid stone, when exposed to the action, by a reverse current of water, to dislodge and detach the extraneous matter between the grains of sand. Now, it is quite evident to any reflecting person, governed by his judgment, and not by passion and sinister interests, who have taken the trouble to examine it, that the force applied by violent shocks of reverse current of water, under a heavy pressure, suddenly stopped at intervals, must, at all times, and in every case, dislodge the sand from its position in the machine. Thus, the very principle on which the inventor rests his theory, is rendered nugatory, by this method of self-cleaning filter, with the object to cleanse the machine from the fifth retained; for the plan of suddenly arresting the full flow of water, and by the rapid action, must, from the defect of the physical nature of the material employed, detach and dislodge the sand from its assumed position in the machine; so that it will be understood that the materials and particles of dirt are carried off by the stream, obstruct the passages, and channels, by which the water is to pass, and gradually fill, and obstruct the passages, and the passages of water stopped and closed by the filter, and the quantity of water gradually diminishing, and the process of filtration permanently retarded, consequently, the ultimate object aimed at in the method of retaining the filtering sand, and preserving the porosity of the machine, by the application of a powerful reverse current, to produce violent agitation between the grains of sand, to remove the dirt from the filtering medium "effectually and simply," exclaims Mr. Sloper, the reverse is effected, and does not vary from the method adopted at Chelsea and Battersea, or possess the advantages and the prudence not to maintain, that the machine is an economical filter, because that would be too palpable an attempt, when we have shown the cost of construction, and annual management, according to Maurras's system, and took for basis the estimate in Mr. Sloper's report, laid before the commissioners of the health of towns, whereby his own figures prove that no great economy would be introduced, in the power employed in cleansing the water, by the use of Maurras's machines—that the construction and maintenance of such filters would involve a capital too considerable for any company to contemplate, and prescribe additional expenses in the cost of water supplies.

The question is not whether the filter can extract a few grains of immeasurable filth from a given quantity of water, and the costs moderate, compared with the system of beds of sand and gravel; but whether Maurras's machine physically impossible to filtrate water on a large scale, the public are to be taxed to an indefinite amount to meet the cost of such filtrations, that the projector may realise a certain amount of profit. We deny that Mr. Sloper has shown there exists any means for the constant porosity of the filtering medium, so to obtain a perpetual supply of pure water in unvaried abundance, and that the trial at New River-head forms any precedent that the filter is adapted for filtration on a large scale. Mr. Sloper has laboured to point out the defects in the systems of beds of sand and gravel, as in practice at Chelsea and Battersea, and elsewhere; while it was evident his desire to cry down those methods, was with the view to put into operation an imperfect, impracticable, complicated, and costly filter, inapplicable for a permanent, constant filtration, uniform and unvarying porosity, uncertain in its effects, duration, and cost. We are prepared to meet, and to confound, the original denunciations of the public, we suspect, in the plan he has adopted to support the eligibility of the filter, said do not anticipate that Mr. Sloper will be able to falsify our statements, nor alter, which we maintain, is the most ineffective of any system on a large scale yet imagined, and does not fulfil that which is required by a sound and practical system of filtration. Looking, therefore, at the invention of Maurras's filter with an impartial eye, in all its bearings, it is impossible to discover that, if permitted to be adopted, for the purpose of filtration, the approving voice of the public would pronounce a verdict in its favour.

EDINBURGH AND GLASGOW RAILWAY.—The great tunnel connected with this line is near completion; workmen are engaged at it night and day. It is nearly one thousand yards long. Upwards of three-fourths of it is finished. The other tunnel, one hundred and seventy yards long, is in a forward condition, and the rest of the line having been laid with the sleepers and rails, the company expect that it will be ready for opening by March or April.

DR. BRIGHT OF ELY-PLACE, HOLBORN, AND HOLLOWAY'S PILLS AND OINTMENT.—Copy of a letter from this celebrated physician to Professor Holloway.—Sir,—I think it but an act of justice to inform you, that I have tried your ointment and pills in several old cases of ulcerated sore legs, which, for a considerable time, had resisted every kind of treatment, but which were afterwards effectually cured by the use of your medicines. In cases of bad breasts I have also found them of great service; indeed, from my practical knowledge, I think them most invaluable in most cases. (Signed) RICHARD BRIGHT, M.D.—To be had of all chemists, and at Professor Holloway's establishment, No. 244, Strand, London.

THE MINERAL INDUSTRY OF BELGIUM.

As Belgium and England are so closely united, and that railways are making so rapid a progress in that country through British speculative enterprise, a résumé of its natural resources and industry will, no doubt, be acceptable. As we have stated, in former Numbers of the *Mining Journal*, Belgium has within the last fifteen years, since her separation from Holland, in 1830, become quite a mining nation. Abounding, as she does, in coal, iron, lead, calamine, zinc, and other minerals, it has opened a wide field for mining speculation and industry. It is from Belgium that France annually imports a considerable quantity of coal, iron, steel, and other metals, and her exports to Germany are on a very large scale. The expense of working the extensive coal beds and mineral ores is very moderate, and provisions being extremely cheap, the mine holders of every description are enabled to export their produce at a low rate, compared to the expensive mode of working in France and this country. One great advantage that Belgium possesses is, that she has excellent roads, which run in every direction. They are divided into four classes—viz., royal roads, provincial roads, leased roads, and cross roads. The roads of the three first classes offer a development of 5-650 kilometres, the expense of which is paid by a turnpike toll, which has never exceeded 2 per cent. on the capital employed in their construction; but, since the introduction of railways into Belgium, the profits of these roads have become nearly null, but the traffic is, however, still very extensive. The natural disposition of the country is also very favourable to mining operations, in consequence of its navigation being divided into three basins, that of the rivers Escaut, Meuse, and the Scheldt, which occupy the greater part of the kingdom. The natural navigation of the rivers run through an extent of 606 kil., and the canals 707 kil., so that art has done more than nature. There is scarcely an important town that does not enjoy the facilities of a river or a canal, and oftentimes both. Thus Brussels has its canals of Willebroeck and Charleroi; Ghent is crossed by the Scheldt, the Lys, and the canals of Terneuzen and Bruges; Bruges by the canals of Bruges, Ostend, and Lissewighe; Mons has the Haine and the canal of Antoing; Namur, the Meuse and the Sambre; Liège, the Meuse and the canal of Vesdre; Malines, the Dyle and the canals of Louvain and Willebroeck. The greater part of these canals belong to the state, which has either cut them, or purchased them from the different companies, who had executed them at their own expense. The tolls, or charge of transport, averages about one farthing and a half to one halfpenny per ton each kilometre; and one most remarkable thing is, that notwithstanding the numerous railways that have been constructed and in progress, the traffic by water has increased instead of decreased. The navigable conveyance will be completely accomplished by the canals of Zelzote and Campine, and the improving of the rivers Scheldt, Lys, Dendre, Meuse, Rupel, Dyle, Nethe, and the termination of that part of the canal joining the Meuse and the Moselle, situated on the Belgian territory, which will cost an expense of nearly 2000L. The first establishing of a railway in Belgium was projected in a political as well as commercial point of view, and a law was passed in the month of May, 1834, which decided that a railway should be constructed by the state, having Malines as a central point, and running east towards the Prussian frontier by Louvain, Liège, and Verviers, on the north, to Antwerp; on the west by Ostend, Tremeur, Ghent, and Bruges; on the south, to Brussels and the frontiers of France, passing through the Hainaut. In 1837 a new law was passed, providing for the extension of the railway from Ghent to the frontier of France, and to Tournay by Courtray, with branches to Brussels towards Namur, passing by Braine-le-Compte and Charleroi. This line was finished in 1843, embracing, with direct trunks and branches, a total length of 560 kil. The construction of this railway did not present any very great difficulties except in its extension to the east towards the Rhine, where the nature of the soil required most considerable works of art, among which was the inclined plane of Liège, by means of which they descend by an incline of three centimetres from the station of Ans in the valley of the Meuse, a height of 110 metres. One of the most remarkable sections is that which follows the river Vesdre. The expenses of this railway, comprising the carriages, &c., amounted to about 6,000,000L, and is not yet quite finished, being at the rate of nearly 10,400L per kil. It is necessary to lay down a second line of rails, and other new branches, the expense of which, for the 654 kil., and other improvements to complete it, are calculated at the average price of 12,000L per kil. The average price in other countries is estimated at—20,000L in England, 15,000L in France, 9280L in Belgium, and 6000L in the United States. From the returns of 1844, the distance of circulation being 559 kil.—the receipts were 449,200L, and the expenses 214,600L, which brings the expenses of the establishment at a little more than 51 per cent. From the above it will be seen that this railway scarcely returns more than three or three and a half per cent. on the capital invested in its construction, but it has been the means of affording great facilities to the public and mining operations in general, as there are not more than 600,000 travellers who circulate annually by the old roads, whilst by the new railway lines, the average is 3,400,000 persons, or about six times as many more. The Belgian territory is of a very rich mineral nature, and, after England, is the most abundant in coal of any other country in Europe, being traversed in nearly its whole length, from east, north-east, and west south-west, by a rich coal seam running from Aix-la-Chapelle and Liège to Charleroi, passing under Mons, and then loses itself on the frontiers of France, under the tertiary strata, or tufted earth. The annual production of coal in Belgium amounts to 40,000,000 tons, which is 4,000,000 more than that of France, and the eighth of what it is in England. Out of 307 coal mines that exist in Belgium, 224 are the property of companies, more or less influential, 83 belong to anonymous companies—it is in the working of the latter where the most extensive quantities are extracted, and which is annually rapidly increasing.

Besides coal, Belgium is very rich in iron mines, and the making and casting of the metal is chiefly done by coal, as her numerous furnaces are supplied abundantly and at a cheap rate with this fuel, and that nearly on the spot from whence the ores are extracted, which is one of the greatest advantages she has over France, and every other country on the continent, and added to which is the facility of cheap conveyance, both by land carriage and canal, which has been the means of giving a strong impetus for carrying on mining operations on an extensive scale. Speculation was, however, carried to a very great extent in 1837, when the production of iron was as high as 700,000 tons, but considerable losses and failures were the result of this over abundance of metal in the market, being far above the demand and the means of disposing of it, the annual quantity from that period decreased to about 350,000 to 400,000 tons; but in consequence of the rapid progress of railways throughout the whole country, and the demands making by France and Germany for iron rails, chairs, sleepers, machinery, &c., which has thrown open an extensive exportation to those countries for her industry, so that the fabrication of iron during the last and present year will be on an average from 700,000 to 800,000 tons annually. High furnaces are being constructed in every direction, and the greatest activity prevails in all the mining districts. After the working of her extensive coal and iron mines, manufacturing of zinc is carried on, on a very extensive scale by the wealthy companies of *La Vieille* and *Nouvelle Montagne* (the old and new), who are the proprietors of some very rich and abundant beds of calamine situated between Liège and Aix-la-Chapelle; the production of zinc in 1843, having amounted to 5,250,000 kil., or 93,750 cwts. English, which is three times more than in 1837; it has, however, very greatly increased during the last two years. Belgium produces but a very small quantity of lead, although there are several mines that are worked and of excellent quality; copper, tin, and other ores, are very limited, but to be able to appreciate the development of mining enterprise in Belgium, suffice it to say, that in 1839 she had already 1044 fixed steam engines of a total force of more than 25,512 horses power, whilst in France, at the same period, there were only 2459 machines of 33,308 horses power—that is to say, that Belgium had then a steam-engine force equal to three-fourths of that of France, although not one-fourth the size in extent. During the last two years she has greatly increased her steam machinery for the working of her mines, cotton, and woollen manufactories, &c., of Ghent and Luxembourg, so as to vie with France, to which country a considerable quantity is smuggled annually. It is, therefore, Belgium that is trying to compete with our iron masters of Staffordshire, Wales, and Scotland, and our extensive coal mines of Newcastle, Durham, Sunderland, Northumberland, and other counties, and it is only by exporting our produce at a moderate price, that we can outdo her in the French and German markets, as both English iron, and machinery, and coal, are preferred, if the price be reasonable in proportion.

Transactions of Scientific Bodies.

MEETINGS DURING THE ENSUING WEEK.

Society.	Address.	Day.	Hour.
Geographical	2, Waterloo-place	Monday	8 P.M.
Statistical	13, St. James's-square	Monday	8 P.M.
Medical	Bolt-court, Fleet-street	Monday	8 P.M.
Zoological	11, Hanover-square	Tuesday	8 P.M.
Society of Arts	Adelphi	Wednesday	8 P.M.
Pharmaceutical	17, Bloomsbury-square	Wednesday	9 P.M.

GEOLOGICAL SOCIETY.

Dec. 2.—The President (Mr. HORTON) in the chair.

The following communications were read: "On some Remarkable Fossil Ferns from Maryland, United States, collected by Mr. Lyell," by C. J. F. Bunbury, Esq. In this paper the author, after describing the fossils in question, one of which exhibited some interesting peculiarities of structure, proceeded to discuss the nature of the evidence with regard to the climate of the coal period as deduced from the examination of the fossil plants. He considered that the experiment of Dr. Lindley on the relative destructibility of different families of plants as by no means of so much importance as has been sometimes assumed, and as leaving the question of climate to be decided by positive evidence, at least in some measure. He thinks it possible that the land, during the carboniferous period, may have existed in the state of islands in the northern hemisphere, but deprecates the assumption, that no continents at all were then in being. He concludes by suggesting the necessity of great caution in such matters, especially in the department of fossil botany.—A paper, by Dr. Mantell, "On the Wealden Strata of the Isle of Wight," the chief object of which was to direct attention to some bones of the Iguanodon of remarkable size and beauty, recently discovered in those strata.

Dec. 17.—The President in the chair.

The following communications were read: A notice by Professor Owen, "On the supposed Fossil Bones of Birds from the Wealden." In this notice the author expressed his opinion, that on a more close and rigorous examination of certain fossils from the Weald formerly described by him as bones of birds, he has come to the conclusion that they do not refer to animals of that class, but must be looked upon as belonging to a species of Pterodactyl. He considers, that we have no satisfactory evidence of the existence of birds in the Wealden. A paper by Professor Goeppert, of Breslau, "On Amber and on the Organic Remains found in it."—The author described the various trees, the remains of which having been preserved in the amber, give us intimations of the nature of the flora of a portion of the tertiary period.

An extract from a letter concerning a depression lately produced in consequence of an earthquake in Cutch.

A notice by Dr. Buckland, "On the occurrence of the so-called Fossil Potatoes on the shores of Lough Neagh, in Ireland."—The author supposes that these bodies are concretions formed on the shore of the lake by the rolling action of the waves on balls of marlstone, which gather up fragments of various rocks.

SOCIETY OF ARTS.

The first meeting of the Society for the Encouragement of Arts, Manufactures, and Commerce, took place on the 17th inst., in the great room of the society, in the Adelphi, which was completely filled.

B. BOND CABELL, Esq., F.R.S., one of the vice-presidents, took the chair, and an address from the council was then read by the Secretary. The council congratulated the society on the auspicious commencement of their ninety-second session. During the recess, the society had undergone a complete reorganisation, and the new system of management proposed by the council had been almost unanimously confirmed by two general meetings—so that the society having thus renewed its youth, would, it was anticipated, display all the vigour and energy of a new institution, combined with the stability and influence of an old one. It was the intention of the council to add largely this year to the value and number of the premiums. In the fine arts, the mechanical arts, the manufactures, agriculture, and commerce of the country, rapid improvements were in progress, which it had been the peculiar province of this society for nearly a century to encourage and direct, and in which nearly 100,000L have already been expended by it with great public advantage. In the present session, many valuable subjects were about to be offered for competition by premiums, and so large a number of important papers were now coming forward for notice, that the council believed the auspices under which this session commenced were unusually bright, and they, therefore, had to congratulate the members upon the improved prospects of the society.

The first communication read to the society was Mr. Bodmer's, on Railway Improvements, elsewhere referred to, and which was generally approved by the meeting.—The next paper was a sequel to the former, by the same author, on improved crank axles and axle boxes, by which greater security and economy is obtained in railway trains running at very fast velocities. There were other papers on the list of the evening, one of them containing a valuable discovery by Mr. Nott, on the Nature of the Photographic Rays, and a method by which a great improvement is effected in Daguerreotype Pictures. But the length and interest of the discussion rendered it necessary to postpone that and the other communications to a future meeting. The meeting was crowded, and deeply interesting, and augurs well for the prosperity of the society under the new regime.

THE NATIONAL PROVIDENT INSTITUTION.

The tenth annual meeting of this mutual insurance society was held at the London Tavern, on Monday last, the 15th instant, on which occasion the large room in which the members were assembled was densely crowded, and there could not have been less than 700 or 800 gentlemen present throughout the proceedings. This unusual attendance of parties interested in the affairs of the institution was owing to the circumstance that differences had arisen between the directors and a portion of the members, which differences were, as had been announced, to form a subject of discussion for the meeting; and, we are glad to add, were finally arranged in a manner satisfactory to all parties.

CHARLES LUSHINGTON, Esq. (one of the directors), in the chair.

After some preliminary observations, the SECRETARY read the report of the directors, from which it appeared that the affairs of the institution had been, during the last year, in a most prosperous condition; that 911 policies had been issued—making an increase of 189 beyond the preceding year, and producing an annual income of 16,835L 13s. 7d.; that the total income of the society now amounts to 70,819L, and that its capital stock is 241,460L 13s. 3d.—which sum showed by far the largest annual increase that had hitherto been made.—The following statement shows the progress of the institution from the commencement:

Years ending	No. of policies issued.	Annual income.	Amount of capital.
20th November, 1836	616	£ 8,021 12 2	£10,736 3 0
" 1837	435	14,500 0 0	31,592 10 5
" 1838	499	19,324 19 4	45,855 0 10
" 1839	499	25,437 4 2	64,559 10 10
" 1840	494	31,051 10 10	90,545 13 9
" 1841	357	36,357 1 4	114,993 2 4
" 1842	364	39,360 9 7	139,806 1 7
" 1843	703	44,219 17 0	167,079 11 2
" 1844	722	55,037 9 2	202,162 1 9
" 1845	911	70,819 14 5	241,460 13 3
Total number of policies issued..... 5551.			

The reading of the report was accompanied and followed by much cheering. A statement of the receipts and expenditure of the institution was afterwards read.—The CHAIRMAN moved that the report, and the statement of accounts, should be approved and adopted, and that the report should be entered on the minutes and printed, and that copies of it should be circulated in the usual manner.—This motion was unanimously agreed to.

Mr. EDENBERGER GOSBELL then brought forward a motion, of which he had given notice, to the effect that all the directors then in office should be removed, and that certain other gentlemen whom he named should be elected to their places. Mr. Gosbell, in proposing this motion, made a lengthened statement, into the details of which we do not deem it necessary to enter: his complaints were directed chiefly against the rules and regulations of the society, under which it appeared that almost unlimited powers are vested in the board of directors, so that the members of the institution could exercise no right except that of electing a new board. The directors fix the amount of their own salaries; they fill up vacancies in their own body, and none of them go out of office in annual rotation. Mr. Gosbell contended that these were rules which evidently required alteration. He also complained of the unsatisfactory course pursued by the board towards a deputation which had been in communication with them upon the subject of those alleged grievances.—Mr. LLOYD seconded the motion of Mr. Gosbell.

Mr. TYLER (one of the proposed new directors) moved the following amendment to the motion:—"That this meeting do adjourn until the directors shall have had an opportunity of considering more fully the objections made against them." Mr. TYLER commented at great length on what he considered to be the defects in the regulations of the society: his observations were directed solely against those laws, and did not extend to the manner in which the affairs of the institution had been managed by the directors. He believed that if the defects in their rules were removed, the directors, who then presided over their interests, ought to be unanimously re-elected.

A very prolonged, animated, and noisy discussion, took place on the motion and the amendment thus submitted to the meeting. It was stated on behalf of the directors that they had some days ago entered on their minutes a resolution, which expressed their determination to take the earliest possible opportunity of giving to the suggested alterations in their laws the mature consideration which the subject required. Several gentlemen addressed the meeting for and against the amendment and the motion under their consideration. The

almost unanimous feeling of all parties present seemed to be, that the laws of the society required revision and alteration; but that the directors, under those imperfect laws, discharged their duties in a manner admirably calculated to promote the interests of the institution.

The discussion was terminated by the chairman's pledging himself, and his fellow-directors around him, that they would revise their rules, and that before the next general meeting of the society they would give ample notice of the amendatory measures which they might have to propose.

The amendment and the motion were then withdrawn, the directors were unanimously re-elected, and a vote of thanks passed to them for their services, when the meeting separated.

"GETTING-UP" A RAILWAY.—In the Court of Exchequer, on the 16th inst., an action (Tapping v. Russell) was tried on an "I. O. U.," for the recovery of 280L—the plaintiff's case being confined to proof of defendant's handwriting.—Mr. Martin, on behalf of the defendant, contended that no liability existed, inasmuch that the "I. O. U.," for the payment of which the action was brought, as also three others of a like nature for 200L each, was not maintainable, inasmuch that the several parties advancing the amounts, had entered into the "spec." of getting-up a railway, to be called the Thames and Southend and Northern and Eastern Junction Company; the project, however, it appeared, having failed, and the money having been properly applied, the learned counsel contended that no action could lie. In support of the defence of the learned gentleman, one of his witnesses, however, completely upset the theory advanced, it appearing that an agreement had been expressly entered into, whereby the plaintiff and others, making advances under similar circumstances, were absolved from all responsibility, the defendant, as projector, being liable for all expenses of outlay incurred. Under these circumstances, the case for the defendant utterly failed, and a verdict was entered for the plaintiff accordingly.

FRENCH STEAM HAMMER.—At the Paris Academy of Sciences, M. Morin described the steam hammer, which was shown at the last exhibition of national industry in the Champs Elysées. In his notice, M. Morin declares that marvellous results are obtained with the instrument; the steam acts, in a direct manner, without the intervention of a motive shaft, and transmits to the hammer a surprising agility, with a power that varies almost according to the will of the workman. At one moment this hammer will crack a nut-shell without touching the nut; at another, it will strike with enormous force upon the largest mass of iron. [All these properties are possessed by Nasmyth's steam hammer, the wonderful performances of which have been frequently noticed in our columns.] M. Morin also observed, that the English Government had adopted the use of the steam hammer for the driving of piles in their ports (Nasmyth's, at Devonport), and recommends that the French Government should follow the example.

PREVENTION OF COLLISIONS.—The frequent occurrence of collisions in the North of England by one train running into another from behind, occasioned by the want of some uniform system of signals, is now commanding the attention of the directors of the principal lines. Hitherto the only signal for trains to stop has been the exhibition of a red light hoisted upon a pillar at the various stations, which is only understood to mean that a train must stop, without denoting the particular train intended. A train stops, perhaps unnecessarily, and is shortly afterwards "crashed into" from behind by another. The superintendent of the locomotive department on the Liverpool and Manchester (now the Grand Junction) has invented a system of signals both for the station-keeper and the engineers, which will place it almost beyond possibility that an accident of this nature can occur, unless from wilful negligence. The system is now in process of trial upon some of the principal lines in Lancashire. A plan has also been invented by which the guard of a train can instantly communicate with the engine-driver, a difficulty heretofore found to be almost insuperable. The arrangements are systematic and comprehensive, easily understood, embracing means by which guards can "signal" engine-drivers, and also others that will enable parties on the line absolutely to stop approaching trains, and thus prevent collisions, even supposing the engine-driver should not pay attention to his duty.

THE IRON BRIDGE ON THE NORFOLK LINE.—The opening of the iron bridge over the Wensum, near Norwich, which was inspected by General Pasley, the Government inspector, took place on Monday. The bridge connects the Norfolk line with the Norwich and Yarmouth. Its weight, including the piles, which are of iron also, head plates, &c., exceeds 523 tons. It is a swing bridge, so as to admit vessels navigating the river. The turning is effected by a windlass, and the arrangement is so simple as to afford a single person full power to work it. The centre forms sixteen arches of thirty-three feet in length, and on each side are the standards, forming piers, surmounted by gas lamps, showing red and green glasses, according to the state of the tide. The bridge is the manufacture of Messrs. Grissell and Peto, the contractors.

NEW TELEGRAPH.—Our attention has been drawn to an exceedingly ingenious application of electro-magnetism to the purpose of a telegraph, which bids fair to supersede all similar plans at present in use upon railways. The apparatus in question is the invention of Mr. George Smith, Garden-lane, Red-bank, Manchester, who, it appears, has been long directing his inquiries as to the most eligible means of carrying out his object. The chief advantages which his plan possesses over the contrivances at present in use, are, the economy of construction, simplicity, and consequent probability of continuing in working order, and, above all, the rapid manner in which intelligence is capable of being conveyed. In order to accomplish this latter object, all arbitrary signs for the purpose of indicating letters have been discarded, each letter of the alphabet being represented upon the dial-plate, and pointed out with a rapidity and precision which certainly astonished us; and, all the time, with so much simplicity that, although we were seeing the invention for the first time, we were enabled to read the intelligence it conveyed with as much ease, and nearly as much rapidity, as if an ordinary book had been before us. This latter advantage appears to us to be a very decided one over the telegraphs now in use. As the invention, we believe, is not yet patented, we are of course unable to disclose anything further of the principle upon which Mr. Smith has formed his exceedingly ingenious apparatus; but it is our firm conviction, that its merits cannot fail to recommend it to the notice of railway companies and others, upon the score of simplicity, durability, and economy.—*Manchester Courier.*

TUNNEL UNDER THE TRENT.—At the last meeting of the committee of management of the Manchester, Huddersfield, and Great Grimsby Direct Railway, the engineer stated that the proof bearings had been made, and that the strata was particularly favourable for the construction of the proposed tunnel. After he had minutely described the nature of the works, and submitted plans of the sections, the committee expressed themselves perfectly satisfied of the practicability of the undertaking. The expense will be much less than was anticipated. The roof above the tunnel to the bed of the river will be nearly thirty feet, and the gradient will be extremely easy.

A letter from Florence says, "Mr. Stephenson, the English engineer, and Prof. Matteani, have, at the request of Prince Demidoff and Prince Poniatowsky, who have obtained the grant for the railroad from Florence to Forlì, been making surveys, to ascertain whether the said line is practicable. We are happy to announce that the result of their examination is decidedly in favour of the project, in spite of the difficulties which are presented by the mountainous character of the country. This line, if carried into execution, will be of immense advantage to commerce, as it will form a means of rapid communication between the Mediterranean and Adriatic seas."

WHITBY, PICKERING, THIRSK, AND GREAT NORTH OF ENGLAND.—The promoters of this line—although the sections, surveys, &c., were deposited at the Board of Trade, and with the clerks of the peace, in compliance with the standing orders—have resolved to abandon their application to Parliament in the ensuing session in consequence of the depressed state of the money market and the improbability of the deposits being paid up. The capital proposed to be raised was 500,000L, and the line was intended to branch off at the Thirsk station on the Great North of England, and to form a junction with the York, Scarborough, Pickering, and Whitby. No allotment of shares has taken place, consequently the promoters are considerable losers, the engineer's account alone amounting to near 4,000L.

LARGEST FACTORY BUILDING IN THE WORLD.—The central part of the Portsmouth (American) steam factory, which is 204 feet long, is now two-thirds up, and should the weather continue favourable, will be covered before Christmas. The eastern wing, of 150 feet, will be built in the spring, and the western wing, of 150 feet, will, probably, be built in the course of next year. The centre part is to be six stories high, the wings five stories; height of the lower story 13 feet, of the other stories 12 feet; the length of the front will be 504 feet, or about a tenth of a mile. There will be about four acres of flooring in the Portsmouth factory. Number of spindles, 50,000; number of operatives 1200 to 1500. In the rear two parallel buildings, two stories high, will be extended 100 feet back from the junction of the main building with the wings; and between those buildings, 50 feet from the main structure, the boiler-house is to be erected. The foundation of the chimney, which is to be 140 feet high, is laid, and is in progress of erection. A gentleman who has been travelling the last year, in pursuit of information respecting manufacturing establishments, and who has visited more than a thousand factories, informs us that the largest building he has seen or heard of is at Manchester in this state, which is 440 feet in length. There is no thing in England to compare with it.—*Portsmouth Journal.*

Steam-Boiler Explosion.—On Monday last, a boiler exploded at the cotton-mill of Messrs. Rothwell and Kitts, attended by a frightful loss of life. It appears that during the dinner hour, the engineer was preparing to start the engine, for the purpose of the mill working after dinner, when it was found that the air-pump was out of order. At a little past one o'clock nearly all the hands were upon the premises, and every exertion was being made to get the air-pump in order—the engineer, Mr. Kitts, and one of the overlookers, assisting at the work—when one of the boilers (an old one), situated inside the mill, near the engine-house, blew up with a tremendous explosion. The entire of one end of the building was shattered to fragments, falling inside, and burying a great part of the persons thereabouts, and in the rooms above, in the ruins.

STOCK EXCHANGE, Saturday morning, Twelve o'clock.

FOREIGN RAILWAYS.			
Alouette and Amiens—200 shares	2	71	8
Ardeux and Toulouse and Cette (Mackenzie)—200 shares	2	14	14
Ardeux, Toulouse, and Cette (Espalote)—200 shares	2	14	14
Central of Spain—200 shares	2	14	14
André Valley—200 shares	2	2	2
Arden and Mulhouse—200 shares	2	2	2
Belg. Elsenbeek—200 shares	2	5	5
Central Indian—200 shares	1	1	14
East Northern of France (constituted)	4	104	13
East Paris and Lyons—200 shares	2	2	24
Genoa and South Midland Junction—200 shares	1	21	21
Genoa North Midland	1	1	1
Genoa and Jemappe—200 shares	4	14	14
Genoa and Avignon—200 shares	2	2	14
Genoa and Lyons—200 shares	4	21	21
Genoa and Vézillon—200 shares	10	15	16
Genoa and Bordeaux—200 shares	6	94	94
Genoa and Yvetot—200 16s 4d shares	41	41	41
Genoa and Lyons (Laffite)—200 shares	2	2	24
Genoa and Lyons (Ganneron's)—200 shares	2	3	24
Genoa and Lyons (Calon's)—200 shares	2	2	2
Genoa and Lyons (Ganneron's)—200 shares	2	2	2
Genoa (Compagnie de l'Est)	2	15	2
Genoa (Compagnie de l'Est)	2	24	24
Genoa and St. Quentin—200 per share	2	2	2
Genoa and Orleans—200 shares	20	46	46
Genoa and Rome—200 shares	20	37	36
Genoa North of Spain—200 shares	1	1	1
Genoa and Havre—200 shares	16	25	26
Genoa and Meuse—200 shares	6	44	44
Genoa and Bâle—144 shares	14	10	50
Genoa and Nantes (Mackenzie)—200 shares	2	44	24
Genoa (Lefebvre's)—200 per share	2	2	2
Genoa and Ancona (Italian and Austrian)	3	14	2
Genoa and Flanders	4	94	31

There is as life occasion, as there is inducement, to advert to the several fields of mining adventure throughout the world. We are not disposed, any more than we should be justified, in depreciating the present merit, or the promising character, of foreign undertaking in this department of industrial occupation; but certainly a long series of cogent reasons might be adduced against the dedication of British capital to mining operations, in lands not subject to the British crown. Property, it has been said—and we admit the force of the axiom—has its duties as well as its rights; and foremost in these duties, we reckon the appropriation of our home wealth to the encouragement and sustentation of home industry. We cannot consistently love, with equal ardour, the coal extremities of the empire and the genial living heat of its centre: the feet of the golden statue are less precious, surely, than its bosom and its head. From these sections of the vast figure, we would transmit to the remoter parts by an organization set up and provided, such vital nourishment—such wealth, and ease of life, as are requisite for the due and healthful exercise of their inferior functions, for their necessary maintenance and consolidation as parts of a great whole; but our bounties should stop at that point. We neither do wisely nor well, when we make ourselves in mining efforts the capitalists of the world. There are fields of remunerative mining adventure within the limits of our home sway, which are yet unpierced by the pick-axe of the mine. Beds of rich ore, stretching into depths, where to follow them would be to walk in a road edged on either side with fortune—lodes of metallic wealth, lying down in the virgin integrity in which the creating hand, on the first deluge, left them—these we have close to our homesteads; and yet the superincumbent mass that thinly hides them from us, has never yet, we repeat it, felt the edge of the miner's spade. Nevertheless, we sail out into every shore the sun shineth upon, in search of profitable investments for our surplus capital, to the rich floor of the British Islands all the while unsearched: Beyond all dispute, this is a misapplication of our resources, as indefensible in its principle as it is in practice injurious; and for that reason the course of our money operations in this particular should be changed.

In the general conduct and administration of mining affairs, the has appeared to us much room for the introduction of additional skill and economy. We do not point to particular abuses—we are not even sure that we could do so, if we would; but of this we are sure that improvements, similar to those to which we have referred, are a requisite,—together with a freer publication of the progress made and a fuller education of the labouring classes occupied in mining, in order to popularize, and give a national character to, an intrinsically national interest. We would not overdraw the picture, nor sprinkle it with lights not indigenous to its atmosphere. We do not

PROGRESS OF FRENCH MINING INDUSTRY.

(FROM OUR PARIS CORRESPONDENT.)

Yesterday, the Minister of Agriculture and Commerce formally opened the session of the Council-general of Agriculture, Manufactures, and Commerce, which he had specially convoked, to demand their opinion on certain important questions, which will have to be brought forward in the ensuing session of Parliament. The Minister delivered a very lengthy speech on the occasion, but on the two in which your readers are interested—a reduction of duty on the importation of iron for ship-building, and for the steel manufactures—he said very little indeed; confining himself to a recommendation to the Councils to give them their best attention, and promising to lay before them all the information and statistics he had collected upon the subject. He represented the mercantile position of France to be in a highly satisfactory state. In 1844, her general commerce amounted to 2,340,000,000 fr., being 161,000,000 fr. more than 1843. The special commerce was 867,000,000 fr.—divided in 818,000,000 fr. of natural products, and articles for manufacture, and 54,000,000 fr. of manufactured articles. The exports were 790,000,000 fr.—800,000,000 fr. being native manufactures, and the rest native products. The transit trade was 230,000,000 fr., an increase of 38,000,000 fr. on the previous year. In the total of the foreign trade, the trade by sea was 1,658,000,000 fr.; by land, 682,000,000 fr.; the former being an increase of 6, and the latter of 12 per cent. on the previous year. Of the trade by sea, French vessels conveyed 46 per cent., or 764,000,000 fr.; and foreign vessels, 54 per cent., or 894,000,000 fr. Nevertheless, the French merchant marine has vastly increased. In 1830, it was 6,808 vessels, of 705,500 tonnage; last year, it was 11,761 vessels, with a tonnage of 1,256,000. It is with the United States that France carries on the greatest trade—after them, with England.

To-day, the Councils-general commence their deliberations. Questions relative to agriculture, the employment of children in factories, joint-stock companies, and other things, will first of all occupy their attention; and then will come those relative to the duties on the importation of iron. On these last, which fall particularly within the province of the *Mining Journal*, I shall probably have a good deal to say in my next. Reduction is imperatively called for; but whether it will be voted by the Councils, is another question. The Councils consist of some delegates from the Chambers of Commerce of Nantes, Havre, Rouen, Bordeaux, Marseilles, and other mercantile places, and of eminent mercantile and agricultural persons chosen by the Minister. Unfortunately, they are all, more or less, peculiarly interested in the questions they have to discuss; and, accordingly, it would be vain to hope for really just and impartial decisions. On the iron question, however, more than on any other, it may happen—not that a perfectly impartial decision will be given, but that such a resolution may be come to as is consistent with common sense, and the general interests of the country—that is to say, that votes for the reduction of the present exorbitant duties on the importation of iron, will be carried. I do not presume to predict that such will be the case—I only say it may. It can, however, only be gained by a severe battle. Many iron masters are on the Council, and they will fight hard against any reduction; but shipowners, in particular, and persons engaged in every other trade, in general—as well as those occupied in agriculture—all having an interest the other way—will fight equally hard; and as they are the more numerous of the two, they will probably gain the victory. This is the sole reason I have for expecting that the vote for the reduction of the iron duties will be carried. That it is not the opinion of every one, however, is clear from an article in this morning's *Journal des Debats*, insisting on the necessity of a reduction on the iron imported from the north of Europe, destined for the steel manufactures; and showing that the iron-masters need not fear that, under pretence of being destined for those manufactures, iron will be smuggled into the country for other purposes. You will remember that, in a previous letter, I gave you particulars of the steel trade in France, which showed, in the most striking manner possible, that France, with a greater demand for steel than any other country, has a less supply; and that yet, with strange stupidity, she places an excessive duty on the iron coming from abroad designed for her steel manufactures. The article of the *Journal des Debats* leads to the conclusion, that the Councils-general, now sitting, may be blind enough to vote for the maintenance of the same system of stupidity; but, to repeat what I have just said, I will not, for my part, believe that men can be so foolish, until they shall have proved it. But whether the present duties on iron for steel be reduced, or maintained, is not of much consequence on your side of the Channel; for it is not England that supplies the steel manufactures, but Sweden and Norway. With respect to the duties on iron destined for ship-building, the case is different—a modification of them would be of immense advantage to you. But such is the stupid prejudice against "*les Anglais*,"—such the inveterate belief that, if John Bull be permitted to introduce the tip of his fingers in the French market, the hand, the arm, and the whole body, will be sure to follow—such the confident conviction that, if he once gets in, no power on earth can turn him out—that it is not at all unlikely that the Council will decide against the proposed reduction. I repeat again, that my present idea is, that the interests of the majority of the Council will induce them to favour the reduction. But Frenchmen are such a set of timid simpletons in mercantile matters, and the burly form of John Bull lowering in the distance, is so terrible to their excited imaginations, that it is by no means improbable that fear will overpower interest. I hope and pray, however, that it will not. France would gain more by the reduction than England; but in my view, it is of immense importance to the latter—not so much from the demand it would create for a few thousand tons of iron, as for its inevitably paying the way for a wholesale and permanent reduction in the present tariffs, whereby England would obtain the privilege of supplying the millions of tons which this country needs for its railways. Some people may think that too much importance is attached to the decisions of the Councils-general; it is true, they will in themselves have no practical effect; but it is morally certain that, be they what they may, the two Chambers will sanction them—hence their importance. In connection with the subject of a reduction in the duties on iron, I may mention, in corroboration of statements in previous letters, that communications lately received from the United States, represent that the French Government has been causing inquiries to be made as to the capability of the States to supply the immense quantity of iron required in France for the railways. Perhaps, the Englishman might point to that, as a proof of the slight respect the French Government entertain towards the *intense cordiale*, about which it makes such a tremendous splutter,—but it is hardly worth while to notice such a petty piece of spite, except as a proof that nothing, but the direct necessity, will compel France to open her markets to our products. With regard to her want of iron, we may laugh at her going trotting about from country to country to seek supplies in preference to coming to us. Come she must, sooner or later, in spite of all her repugnance. No other country can supply her so well, or so cheaply. As to the United States, it would be about as wise to talk of the moon. They have not enough iron for themselves, notwithstanding the immense development which the manufacture of it has of late taken; and even if they had, the cost of bringing it here, would make it dearer than the iron of France itself.

A provincial newspaper contains an account of the discovery of a coal mine, at a place called Sainte Surzaune, near Orthez. The inhabitants were so delighted, that they went *en masse*, with the local authorities at their head, to the church, to render thanks to God. They also indulged in noisy rejoicings. The mine is said to bid fair to be very rich.

Exceptions are taken to the correctness of the figures put forth in the prospectus of the new company for supplying France with iron, to which allusion was made a fortnight ago. That they were grossly incorrect, your readers could have easily ascertained, on comparing them with the citations from official documents, which appeared in former letters; but, even with those figures the company itself had chosen, the company proved too much, when it attempted to show that France, which is obliged to borrow one-third of (as is said) an annual supply of 70,000 tons of iron, will, in a few years, be able to supply an extra demand of upwards of 3,500,000 tons.—*Paris*, Dec. 16.

IMPROVEMENTS IN STEAM-SHIP PROPULSION.—We have alluded, in various Numbers of the *Mining Journal*, to the benefits likely to be obtained by the general introduction of the convex paddle-float, invented by Mr. Smart, for the propulsion of steam-ships, not only in our merchant service, but particularly in the Royal Navy, and which we are glad to find has been duly appreciated in a high quarter, as we are given to understand that it is intended to introduce the convex propeller on board several of her Majesty's steamers as an experiment, and there is no doubt, from the success we have reason to anticipate will follow, it will be universally adopted when its great advantages are known to the maritime interest. We insert with pleasure a letter from Samuel Bromhead, Esq., on the comparative speed of the convex and common float:—

4, Upper Byron-place, Dec. 17, 1845.
SIR,—I have thought once or twice to forward the memorandum taken by me for your use, if it may at any time be of value when trying my boat, the *Water Sprite*, and I should say that this calculation could scarcely be considered a proof of the excellence of your patent, because I have not an engine more than one-half the necessary power of, or for, a boat of the size of the *Water Sprite*. By the common paddle on the still water of our float, we were able with the same pressure of steam to effect the mile in nine and a half minutes, whilst with your floats we were exactly seven and a quarter minutes; of course this does not include starting in either case, as the distance run was nearer two miles each time; the time was kept from the same point to another, one mile apart both trials, and the above was the result. My engineer has given her another trial since, but I was not present, though he tells me with fully equal result. I can only assure you, your paddles must and will come into more general use, as they are more and more tested, and, with best wishes,
I am, Sir, your obedient servant,
SAMUEL BROMHEAD.

To R. SMART, Esq., Patentee of the Convex Floats, 9, Granville-place, Hotten, Bristol.

suppose that, by any administrative skill, it would be possible to pour a Nile through the land; or, by any ingenuity, on the fullest application of capital, to flood our mining fields with an Egyptian fertility. But, if an attention to these suggestions should at all result in the greater ease and more just remuneration of the labourer—should produce a settled tendency to double the dividends of the capitalist (and we think that, at least, the tide will flow in that direction)—we shall have contributed to an end, which, in every commercial community, will be recognised as a tangible and specific good.

Among the numerous resources which Nature has placed in such profusion throughout Ireland, there is, perhaps, none so such a prolific extent, or, in comparison, so little valued, or turned to the uses for which it is so eminently calculated, as peat, or turf. The total area of Ireland is 20,000,000 acres—that of bog 2,830,000 acres, or nearly one-seventh of the entire surface of the island; of this large deposit 1,576,000 acres is "flat bog," or that which extends over portions of the great limestone plain, and which is the most valuable, in an industrial point of view. The specific gravity of the light surface turf is about 400 (water being 1000), and from this it increases to nearly the density of coal. The light turf, which is so much burned, weighs 500 lbs. per cubic yard, while the most dense varies from 900 to 1100 lbs.—being about half the average weight of coal; and thus furnaces, to burn the same weight of coal and turf, would require double the capacity of the latter. Dr. KANE found, on analysis, specimens of turf from the Great Bog of Allen, contained—carbon, 61.04; hydrogen, 6.67; oxygen, 30.46; ashes, 1.83, and its calorific power to be about half that of coal—a power, however, greatly diminished by the water which is allowed to remain in its texture; and he observes, that there is nothing in the economy of Ireland that requires more alteration than the collection and preparation of turf. The best method yet known is that invented by Mr. C. W. WILLIAMS; the turf, when fresh cut, has its fibre broken up as much as possible, is then placed between cloths, and pressed by a powerful hydraulic press; this condenses to one-third its original volume, and it loses two-fifths of its weight from the water which is forced out; this condensed peat, when carbonised, gives a fine coherent coke, containing little ash, and amounts to 30 per cent. of the weight of the turf; its density is greater than wood charcoal, and may be manufactured for 20s. per ton.

We have often adverted to the importance which the iron manufacture might be rendered of to Ireland, and which, in connection with the inexhaustible supply which could be obtained of this prepared turf charcoal, opens up a new field for enterprise, and enable Ireland to produce a metal equal to Russian or Sweden. It is well-known that iron smelted by means of pit coal always preserves a degree of impurity, which reduces its strength and deteriorates its structure, so that, for the finer purposes of machinery and of cutlery, we are indebted for much iron from those countries where the smelting being carried on by means of wood charcoal the metal is obtained in absolute purity: hence the great difference in price—English bars now realising 9l. 15s. to 10l., while Russian varies from 15l. 10s. to 16l. per ton, according to its quality. Now, here it is shown that Ireland possesses the means of preparing those irons of superior quality, and of replacing, if not the finest, at least the ordinary sorts, of Baltic iron. The elements necessary to produce such metal being ores of great purity and a proper vegetable fuel—Ireland possesses both in great abundance, and nowhere under more favourable circumstances than at Arigna.

We will now give some statistics from Dr. KANE's work as to the manufacture of iron with turf on the continent—hoping that the matter will be taken up by parties who have both the power and the will to promote the improvement of the country; and feeling satisfied it would be well worthy an experiment by the enterprising company, who, we believe (as stated in a former Number), are about immediately proceeding to work the Arigna mines. At Ransko, in Bohemia, an extensive iron-work is in operation for the manufacture of bar and plate iron—the ore is clay ironstone, of moderate quality, and the fuel turf and charcoal mixed; to make a ton of iron, they use of turf 34 cwt. 3 qrs., costing 8s. 9d., and charcoal 30 cwt., costing 24s. 7d. The fuel, therefore, for a ton of iron, costs 33s. 4d., and the other expenses bring the total cost of pig-iron to 3l. 15s. per ton, while the quality is of the very highest character. At Königsbrunn, in Bavaria, are iron-works peculiarly worthy of attention, as it appears they execute with turf alone the puddling and second fusion—reheating and rolling, and, in fact, all the operations which are effected with coal in England. This turf is prepared with unusual care; it is not pressed, but dried in a building, erected for the purpose, and its cost is 13s. per ton; it contains—volatile matter, 70.6; carbon, 24.4; ashes, 5.0, in 100 parts. The cost of manufacturing fine bar-iron by this turf is as follows:—

27½ cwt. pig-iron, at 6l. 13s. per ton	£3 1 4
Turf for puddling, 37 cwt., at 14s. per ton	2 7 6
Ditto for reheating, 30 cwt., " "	0 10 10
Labour and general expenses	0 10 10

Cost of fine bars, per ton

From these facts, it is clear that iron of the very best description, and suitable for the finest purposes, can be produced by the use of turf, either in its natural state, or made into charcoal. Some small portion of iron is yet manufactured in England, by means of charcoal, and which produces so excellent a quality, that it realises the price of the lower sort of Russian iron, but the consumption of fuel in these processes is so great, and its cost enters so largely into the expense of the manufacture, that it becomes important to call attention to every mode by which any saving can be effected. Chemists and engineers have long considered this point; it is still attracting much consideration, and to all who are in any way connected with extensive deposits of turf, we strongly recommend the serious consideration of the subject; and to the manufacturers of iron the necessity of pursuing experiments in the use of turf, convinced that not only will it open another field for national industry, but pave the way to render us entirely independent of other countries for the finer descriptions of iron.

The excitement as regards railway companies, instead of being on the wane, would appear to be rather on the increase, if we may judge from the proceedings of the day. It would appear from a meeting, held on the 15th instant, of the proprietors in the *Direct London and Exeter Railway*, that, in consequence of the deposits not having been paid to the extent required, so as to justify application to Parliament, no immediate steps be taken for carrying out the object of the subscribers. On referring to the prospectus, we find that the company was constituted with a capital of 3,000,000l., divided into 120,000 shares—of which number the committee, however, thought right to confine the issue to 61,000; of which, it appears, 37,440 remain unpaid, and thus the deposit is only 32,395l. It further appeared, from the statement of the chairman, that the expenses incurred amounted to 31,390l. 0s. 7d.; which was composed of the following items:—Preliminary expenses, 4346l. 11s. 3d.; engineering and surveying, 14,050l.; law expenses, &c., 8791l.; advertising expenses, 2639l. 19s. 4d.; printing, stationery, &c., 584l.; travelling expenses, 236l.; rent, salaries to secretary, and clerks, 557l.; miscellaneous expenses, 186l.—leaving a balance of 492l.: while, out of a list of the provisional committee—sixty-five in number—thirteen only had taken up their proportion of shares in the undertaking. In looking over the report of Mr. BRATHWAITE, the engineer, we find that gentleman takes great credit to himself for the extraordinary exertion used in surveying 195 miles within a very limited period—the expenses of survey not exceeding 70l. per mile, or 13,650l., which, we doubt not, will be admitted as a mode-

rate sum. We are told, by this gentleman, that it was only on the 10th of October that such surveys were commenced, and it is about that time, we find by the report, that the shares, or, we should rather say, a portion of those into which the capital of the company was divided, were allotted to the public. As we believe the prospectus of the company was issued some months since, some little explanation on this point might be deemed satisfactory.

We now turn to the proceedings at the meeting of the Grand Junction and Midlands Union, from which we gather that, out of some 60,000l., as deposit money, only 5,400l. had been paid. However, 17. 1s. per share, it appears, is to be returned to the shareholders,—the remainder of the deposit money being left until a future period, "when the committee," to use the words of the report, "are prepared to state the course which they propose to adopt, with reference to the prosecution of the undertaking, and the balance of the deposits." This would appear to leave the question open as to the payment of preliminary expenses,—which, however, from the reading of the report, we presume, the committee purpose taking upon themselves. Were such a course adopted in other companies, we doubt not but that the shareholders would liberally come forward, and protect the provisional committee from any losses to which they might be subjected, in promoting an object which had for its end the interests of "One and All."

We refer our readers to the Progress of French Mining Industry, in another part of our Journal, in continuation of the article that appeared last week, from which it will be seen that France is far from being a mineral kingdom, although she is, without exception, one of the most flourishing in agricultural and horticultural produce. She is obliged to resort either to England, Belgium, Germany, or the north of Europe, for her metals and coal, from which she imports annually to a very great extent. She is deficient in copper, iron, lead, tin, zinc, and nearly every description of ores that would render her independent of foreign countries. It is only of late years—since the peace of 1815—that any attempt has been made to work the mines she actually does possess—having been for centuries embroiled in wars, particularly during the reign of Napoleon, when nothing but arms and battles were thought of; but, since the house of Orleans ascended the throne, by the revolution of July, 1830, the greatest encouragement has been given to mining enterprise by the Government; and, in a few years hence, no doubt a rapid progress will be made, as the use of machinery is now generally adopted in the metallic and bituminous departments. Since the extraordinary advancement that steam locomotion, or propulsion, has made in this country, not only as far as regards our splendid-built steamers—wood and iron—but railways, from one end of the United Kingdom to the other, a great stimulus has arisen in France to rival with Great Britain, if possible, in the fabrication of machinery, iron (wrought and cast), and all the necessary materials for railways and ship-building; they are extending the working of their coal beds, to exclude, if they can, the importation of British coal; but, with all the exertions that may be made, still France is not, nor ever will be, a mineral or mining kingdom; and, as we have stated repeatedly before, she must be dependent on other countries to meet the demands that are so progressing. The return we refer to will be quite satisfactory on this point, being official.

Among the numerous projects for the formation of railways during the past few months, that of the Thames and South-end and Northern and Eastern Junction Company form one of the few. The capital of this company, as appears by the prospectus, is set down at 1,300,000l., divided into 65,000 shares, of 20l. each, on which a call of 2l. 10s. per share was required—thus making the deposit money 162,500l.; no small trifle. The names of Messrs. DYSON, HALL, and CO., appear in the prospectus as solicitors; and Messrs. RENDAL and ALBANO, as the superintendent and acting engineers. It would, however, unfortunately appear from the proceedings before the Chief Baron in the Court of Exchequer, on the 16th instant—that the line, however it might be calculated to be a public advantage, must be considered as defunct; while a reference to a notice in another column, will at once give the cause, and, at the same time, afford a clue to the mode in which numerous companies have been got up—the failure of which, under such circumstances, cannot be matter of surprise or regret. The case is simply this:—A Mr. RUSSEL, having undertaken to get up the proposed company, obtained sums to the amount of some 800l. to 1000l. from certain parties, to pay, it is to be presumed, the preliminary expenses attendant upon the promotion of the scheme, and giving his I O U's as security for repayment of the same. It is not for us to enter into any argument as to the merits of the case, which, we can imagine, were fully understood by the jury; nor should we advert to it, but as an instance of one of the many instances which, we fear, might be adduced, as to the mode in which schemes have been got up of late, and which, we regret to say, has been attended with such serious consequences, involving one with the other, without reference to their merits or demerits. A few exposures, however, of this nature will, doubtless, have a beneficial effect, while we may expect that, as the calm succeeds the storm, so that whatever may be the result of the Parliamentary crisis of the day, that of railways will, and must, benefit from exposures of this nature, and thus give security to, and confidence in, *bona fide* undertakings.

THE SCOTCH IRON TRADE.

There appears to be no end of new iron-works. We have just heard of several works about to be erected, but four certain—viz., one in the parish of Lesmahagow, another near Wilsontown Iron-works, a third at Dalmeilington, and a fourth near Kilmarnock, each of which will probably commence with four blast furnaces. It may be interesting to estimate the production when the projected works are in full operation. There are in blast, at present, ninety-one furnaces, and it is expected that twenty-five additional ones will be in blast in three months. Now, with the several new furnaces above mentioned, there will be in blast next year no fewer than 132 furnaces. These furnaces will produce the enormous quantity of 17,000 tons weekly, or 884,000 tons annually, which, with the English production of 1,200,000, will give a total produce of 2,000,000 tons of pig iron annually. So large and increasing a production accounts for the great accumulation of the stock of pig iron (the stock in Glasgow is estimated at upwards of 250,000 tons), notwithstanding the extraordinary demand made for this article for the purposes of railway companies.

There is a singular feature in the Scotch iron trade not generally known, but which must be rectified before the trade be put upon a secure basis. We allude to the fact that, although the rails now universally used are made of malleable iron, there are in Scotland only sufficient malleable works to convert the produce of fifteen furnaces into that description of iron. The Scotch iron-masters are also shut out from the benefit of the numerous English malleable iron-works, which may be said to be supplied with pig-iron of their own manufacture. The total quantity of Scotch pig-iron taken to England, and manufactured there, is so trifling that it is not equal to the produce of more than a very few of our blast-furnaces. The late high prices, we fear, will be found to have had a most injurious effect upon the trade, both by stimulating the production to an enormous extent, and by cutting off the export of pig-iron; for, under the new duties imposed by the Zollverein foreigners cannot afford to take our pig-iron except at low prices. And when it is remembered that in 1842 (the last year in which the continental exports were considerable) the amount of pig-iron exported from Glasgow alone was 70,000 tons, it will be seen how important it is to cultivate this branch of the trade. And this can only be effected by keeping prices moderate. It is a painful fact that since 1842 the exportation of pig-iron has all but ceased.

Under these circumstances, we are at a loss to conceive how the surplus pig iron is to be disposed of. Should the prices fall, of course part will be exported; but until there have been erected as many malleable iron works as there are pig iron works, the trade, we fear, will suffer great depression in consequence of the constant accumulation of stock. On account of the many railways in course of formation or projection there must be a great demand for malleable iron. We are therefore surprised that this branch of the trade has hitherto escaped the attention of our capitalists.—*Glasgow National*.

BRITISH COAL CONTRACTS BY THE FRENCH GOVERNMENT.

The coal mine proprietors of La Loire, St. Etienne, Valenciennes, and Danzin, and other parts of France, are highly incensed at the favour shown by Government, in giving the preference by importing the coals they require for the supplying of their different possessions and steam navy from Newcastle, and other parts of the north of England, instead of purchasing them at the native collieries. The approaching contracts about to be entered into with the Minister of Marine and Colonies, are looked forward to with some interest by the monopolists of this important fuel. On the 24th inst., the following contracts will be concluded—viz., for 4,000,000 kilos, or 8,000,000 lbs., of English rock coal, to be divided into two lots of 4,000,000 lbs. each, to be delivered at Sierra Leone, and port Alexandria, for the use of the French squadron, now cruising off that part of the coast of Africa for the suppression of the slave trade, according to the treaty entered into between this country and France, to put down this disgraceful traffic in human beings; also for 5,000,000 lbs. of English rock coal, to be delivered at the Islands of Papeti and Taio-hae (in the South Pacific).—On the 10th of January next, the Minister of Marine has announced that he will be ready to enter into a contract for 2,000,000 lbs. of English rock coal, to be delivered at the French colony of the Island of Martinique; the terms of contract are deposited at the office of the store keeper at the Admiralty in Paris; at that of the French consul at Newcastle: as well as at the offices of the Marine Commissariat at each of the ports of Dunkerque, Havre, St. Servan, Nantes, Bordeaux, and Marseilles. For the contracts of English coal, concluded on the 12th inst. by the Minister of Marine for 10,000,000 lbs., there were three contractors who offered to deliver them at the following prices:—Messrs. Angot, of Brest, at 9s. 9d. per 2 cwts.; Jackson, of London, 9s. 10d.; and, Hautier, jun., and Decaens, of Havre, at 7s. 9d.; the contract was, consequently, concluded with the latter.

We mention the above, as showing the jealousy that exists against an Englishman having the Government contracts, as they would throw open a traffic for our shipping interest which the French merchants are striving to put down as much as possible, although they are fully aware that their vessels are of that inferior build that they cannot compete with our Newcastle, Shields, and Sunderland colliers for long voyages, and that the French Government knows well, as the preference is always given, if possible, to the English ship. It must be remembered that Messrs. Hautier and Decaens, of Havre, are shipowners, and that, consequently, they had sooner send in a very low contract, affording only a small profit, rather than another, but particularly an Englishman, should have it, as they are able to ship their coals themselves at Newcastle on board their own vessels, and consequently the expenses are much reduced. When the approaching contracts are concluded, we shall give full particulars of the result. We have, in former Numbers, alluded to the monopoly existing on the part of the large coal mine proprietors of the Loire and St. Etienne, which subject, as we stated in last week's *Mining Journal*, was now under the serious consideration of Government. We perceive that the Municipal Council of Lyons have also been directing their attention to this amalgamation of the pit-holders of the Loire, and a very interesting report, was read by the Mayor at the last meeting of the Council, when he entered very fully on this union of coal mine proprietors, which embraces the canal of Givors and the railway of St. Etienne, as it presents most serious results. He requested that a special commission should be named by the Council, to examine this important question in every respect, as it regards the interests of a large commercial and manufacturing city like Lyons, where so much coal fuel is annually consumed in the various factories with which she abounds. A commission was, consequently, appointed, consisting of the leading merchants, and several experienced mining engineers, for the purpose of fully investigating this all-absorbing question to those connected with the southern part of France in the iron trade, silk manufactures, &c., who chiefly depend upon their fuel from these mines or collieries. We shall again allude to the subject.

THE SALT TRADE MONOPOLY.

It was expected ere this that the white salt proprietors of Cheshire, Worcestershire, and other districts, would have received a definitive answer from India, to the petition that had been presented to the Court of Directors of the East India House, praying that the restrictions imposed upon the importation of British salt into the different presidencies of our Indian Empire, would be taken into consideration by the honourable board, and that they would either be entirely repealed, or greatly reduced, being one of the greatest grievances that the white salt proprietors of this country had to contend with in the shipment of their industry to that distant part of the globe. We have, in former Numbers of the *Mining Journal* referred to this important question, and the solemn Leadenhall-street promise that the grievance should be fully considered, and instructions sent out to that effect to the local authorities at Bombay, Madras, Bengal, and Calcutta. We are now approaching January, and six months have nearly elapsed since the directors were to have communicated with their employes in the above presidencies on the subject, but no answer has yet arrived, or, at least, been publicly announced to our salt mining interest, although it is stated at the City sanctum that it is the intention of the "wise men of the East" to issue new regulations next month as to the modified restrictions that will be imposed upon the importation of this absolutely necessary article for the salubrity, not only of the Europeans, but the extensive native population of India. We are well aware that monopolies are seldom or ever given up whether by a Government or private individuals, if they possibly can be retained, however oppressive they may be to the public welfare at large. The monopoly that has been exercised in India for years, on the manufacture or production of salt, has been one of the greatest grievances that the natives have had to submit to, as it is to them a more necessary article than tobacco, tea, coffee, and sugar, as to Europeans. The country cannot produce a sufficient quantity to meet the demand of the population, and what is sold is of a very inferior quality, and at a very high price, being in the hands of the Government authorities as a complete monopoly, whilst if British salt was admitted free, or at a moderate duty, it could be sold in the Calcutta market at least 50 per cent. less than the monopolised salt, and of a superior quality. The consequence is, that notwithstanding all the surveillance of the authorities, there is annually smuggled into the different presidencies a very considerable quantity of English salt; and the native peasantry, wherever they can do it with impunity, have their private salt pans, in the sale of which they make a good livelihood with the shopkeepers.

Notwithstanding this infamous and oppressive impost on the importation of British salt, the trade has increased within the last two or three years by at least three-fold to what it was formerly, and very large shipments are constantly being made from Liverpool, either to India or the island of Hong Kong, where a considerable commerce is carried on between that newly-acquired English possession, Canton, and other parts of China, where it meets with a ready sale, and at good prices. The East India Company's agents are well aware of the impossibility to prevent a system of contraband trade being carried on, if they do not reduce the duty; and we have every reason to believe, from the information we have received, that the monopoly of salt in India will close its oppressive existence with 1845. The salt mining industry is rapidly improving, and should Gloucester become, as is expected, a seaport, its exportation from that city will be a most beneficial branch of commerce, and give a new impetus to this important trade. A Steam Navigation Company is forming at Liverpool, for establishing a regular line of steamers between Hong Kong and China, so as to afford a constant communication between that island and the five consular ports that are open to foreign commerce in the Celestial Empire. These steamers are to be three in number, and built of iron, of 350 tons each, and 100-horse power, with a screw propeller, excepting the one from Hong Kong to Canton, which will be only 60-horse power. When these are established, a great facility will be afforded, not only for the conveyance of salt, but every other article of British produce, that is either sold or exchanged in barter with the Chinese, who have invariably given a preference to deal with the English, over all other foreign nations.

THE COAL TRADE IN AMERICA.—The *Mining Journal*, noticing the rapid march of improvement in the Schuylkill coal region, says, there have "never been any two years in which so many new steam-engines were erected in the district as in the present year. New ones are constantly being put in operation, both for mining and breaking coal. Our mechanics, especially the machinists, have been reaping a rich harvest for some time, owing to the large number of new works which have been constructed. It is probable that more than \$1,000,000 have been expended in the region during the past year in making improvements of various kinds. At least six hundred new houses for miners have been built, exclusive of those in the large towns. The consequence has been an extraordinary activity in trade, and business of every kind has been unusually brisk this year. During the boating season of next year, we can and will send forty thousand tons of coal to market per week—the trade will steadily increase at the rate of between 200,000 and 400,000 tons per annum—and the prosperity and business of the region will gradually and steadily increase with the increase of the coal shipments."

IRON ORE.—A valuable lode of iron ore has been found on the estate of J. Caunter, Esq., near Henneck, which has been let to a wealthy company, and is to be immediately worked.—*Exeter Flying Post*.

THE MANUFACTURE OF STEEL IN FRANCE.

In former Numbers of the *Mining Journal* we have given the official returns of the steel produced in France, and showing the exertions that are making by our rival friends on the other side of the Channel, to compete, if possible, with the steel manufacturers of Sheffield, Birmingham, Manchester, and our great iron districts of Staffordshire and the north. We have now great pleasure in publishing the following article, from a correspondent, on the manufacture of steel in the different departments of France, which will, no doubt, be read with interest, as the central jury—who had been commissioned by Government, at the late exhibition at Paris of the produce of French industry, to examine into the progress that had been made in the improvement of her metallurgic resources and manufacture of metals—have made their report. The manufacture of steel has been the object for years of some of the most learned men, but, notwithstanding all their researches, the theory of its fabrication still remains very incomplete, being subject to so many methods of combination or amalgamation. There are, generally speaking, three descriptions of steel—viz., natural or native steel, cemented steel, and cast-steel, but each of them is differently combined, according to the materials employed in making it, being more or less strong and elastic. So as to make some comparison between the manufacture of steel in France and England, suffice it to say, that the former produces and makes numerous varieties of natural steel, cemented, and cast. The following is the method adopted in making the different kinds:

Natural Steel.—Natural steel is obtained by the refining of the cast metal, or by the immediate refining of the ore. In the first, the French generally employ the white metal, which they receive from Prussia or Savoy, or else the white and grey. The steel that is made with the spathose metal of the Rhine, and after the German system, is just the same as that made in Prussia, being, at the same time, hard and flexible, and employed to advantage in the making of cutlery implements, files, saws, scythes, and iron hardware. Another description of natural steel is that produced with the white French metal, which is chiefly made in the departments of the Isere and the Dauphiné, but to make it of a good quality, it is necessary to mix with it the cast metal of Savoy, which is much harder; by the means of these two metals, and by refining, a quality of steel is obtained, suitable for any hardware, and is generally sought for by the gunmakers in France, as it can be easily worked in its rough state, and not quite so ductile as that of Germany; it is also used to a very great extent by the cutlers of Thiers and St. Etienne. The third description of natural steel is made with grey cast metal. The principal establishments for this article are in the departments of the Nièvre, the Vosges, and the Upper Saône. The rough steel that they furnish is generally used in the making of agricultural implements, but in being refined it is employed in the making of articles of cutlery, swords, &c., but it is inferior to that of Germany. The manufacture of natural steel for the direct refining of the ore is only adopted in the Pyrenees, and is produced indiscriminately by iron in the Catalane furnaces, but not generally used.

Cemented Steel.—In the making of this, French iron, as well as that of Sweden and Russia, is employed, but its quality is far inferior from either that of England or Germany.

Cast Steel.—The chief manufacture of this article is at St. Etienne, where it is made by two different methods—1st, by means of cemented iron, either from the Ariège and sometimes Sweden: 2d, by obtaining it from flings. The first is generally adopted, although the second is cheaper. Cast steel being of a finer grain than either natural or cemented steel, it can, consequently, acquire a greater hardness in temper, and presents a neater surface after being polished; it is these qualities which so highly recommend it where ever a good polish is required, although not so full of nerve. However, if cast steel is reduced to small dimensions, it preserves a greater hardness and elasticity than natural steel; it is for that reason that natural steel is nearly always employed in the making of springs of a certain thickness, such as those of clocks, lamps, &c., which require a strong nerve. On the other hand, this steel is not suitable for the making of watch springs, and for this reason cast steel only can be used; as natural steel being much softer than cast, it would lose a great portion of its hardness by the different processes of heat it would have to undergo, so as to reduce it to the thin and flexible state required. Such are the different varieties of steel produced in France, which, perhaps, is greater than many other countries, although the quality is far inferior to those of England. In Germany they chiefly fabricate natural steel, very little cast steel, and scarcely any cemented; whilst in England, on the contrary, we principally confine ourselves to the manufacture of cemented and cast steel, which, by being composed of the best irons of Sweden and Russia—our own iron only being used in the making of hard or inferior quality—has gained for this country the celebrity she pre-eminently enjoys all over the world for this particular metallic production, which is not only confined to her cutlery industry, but every other branches, where fine and highly-tempered steel is required, particularly in machinery, instruments of every description, &c., which renders France, notwithstanding all the exertions she is making to compete with England, obliged to be dependent upon us and Germany for her superior tempered steel, and common natural cheap steel from the Rhine and other German provinces. As far as regards the manufacture of natural steel, the great difficulties which they have to encounter in France arises from the inferior quality of the ores; as they have not as yet been able to produce—even supposing that the ore was rich in manganese, which is extremely rare, and the only beds they have are in Dauphiny and the Pyrenees—polished cast metal the same as in England and Prussia. The cast metal of the Isere and Savoy, have a strong analogy with those of Styria; but the white metal is generally used, because the refining requires less time and less difficulty. The difference that the jury remarked in their examination between the cast metal of Prussia and that of Styria was, that the latter had greater nerve than the former, and very applicable in the making of scythes and certain descriptions of springs, whilst those of Prussia are more suited for iron ware, being ductile and finer grain. It was recommended that, by adopting the German method, by refining or affining of the cast metal of Dauphiny and Savoy, in all probability the steel manufactures of France would be able to produce the same description of metal as that of Styria. It was also strongly advised by the commission, as far as regards the manufacture of cast steel, and to rival, if possible, in quality with those of England, that they ought to try and procure their iron direct from Sweden the same as we do, and of the first qualities which are made with the ores of Dannemora, the production of which, it is stated, has been hitherto exclusively consigned to the house of Sykes, at Hull. The above will show the jealousy which exists on the part of the manufacturers of iron and steel in France at the rapid progress making in this country in the perfection of every description of metal, and mining operations in general, against which no other power can compete.

NAVIGATING THE RIVER AMAZON IN SOUTH AMERICA BY STEAM.

We alluded, in last week's *Mining Journal*, to the progress Capt. Clause had made in opening a free passage up the Amazon River for steamers, but, particularly, the River Guallaga, as far as Tingo, in Peru, and the valuable mineral discoveries he made during the short time he explored, or, at least, traversed, that fertile and rich mineral part of South America. By private information we have received from a correspondent at New York, by the *Britannia* steamer, we are informed this experienced naval officer has had full power given him, by the company that is forming in the United States, to explore the whole of that territory, to see how far the different rivers can be made navigable, so as to carry out mining operations on an extended scale, as silver and other ores, may be culled in a perfect native state, being found abundantly on the surface, or very few feet below the prolific soil. The captain, we are informed, has gone another exploring expedition up the River Gastoza, a branch of the Amazon, attended by several eminent mining engineers, who are commissioned to make not only a survey of the country, but, more particularly, the mineral resources it offers to mining enterprise and commercial speculation. From the accounts we have received, the country is not only one of the most salubrious, as far as climate and a plentiful supply of spring water is concerned; but it is most abundant in everything necessary for the well-being and happiness of man, and, if properly cultivated, it will in a few years hence become a most lucrative undertaking for those who had the adventurous idea of exploring a country hitherto unknown, not only to the Americans, both north and south, but more particularly to Europeans. As we receive any further information on this grand mineral expedition, we shall publish it for the gratification of our readers, as there is no doubt that mining will eventually be carried on on a very extensive scale, when the resources of the country are more accurately ascertained.

MINES IN ASIA MINOR.

We have been favoured with the following interesting account of the mines in Asia Minor, dated from the banks of the Euphrates:—"The country that I inhabit forms a junction with ancient Mesopotamia, and the celebrated plain of Sennar, with that part of Asia Minor occupied by the chief of Sivas, being the most productive portion of the whole of the principal northern chain of the Taurus. The mines of Kieban and Argana, to which the Ottoman Government is directing its particular attention in the working of them, and being in the vicinity of Diarbekir and Mesré, a well-built village in the plain of Kharput, and the residence of the seraskier of Anatoli, and the muchir of Diarbekir, which, being a very frequented route leading to various parts of Asia Minor, to Diarbekir and Bagdad, contribute to develop in the surrounding country a movement of intercourse and traffic, that one would scarcely expect to meet with. It is but very recently there were a great many European engineers and miners at Kieban and Argana; since their departure, the direction of these mines has been confided to Edhem Bey, a young Ottoman, who would easily be taken for an European, if he wore the costume, and speaks French the same as if he had always resided in Paris, and is one of those young Turks who has employed, to the greatest advantage, their residence in Europe. The special information which he has acquired during his travels in England, France, Belgium, and Germany, has enabled him to render great services to his country; and is continuing, with the most extraordinary activity and intelligence, the remarkable works commenced by the Austrian engineers. The second engineer, Ennis-Effendi, who had made his studies in England, and travelled a great deal in Germany, is also a man of great merit and industry. Kieban is a borough, situated on the road to Bagdad, on the right bank of the River Euphrates, having about 1000 houses, either Christians or Mussulmans. It is placed in a sort of defile, the mountains of which are metalliferous, being completely without trees, as well as the surrounding country, which is quite barren and hard. It is the residence of a caimacan at present, but, before the tanzimat, it was that of a muchir and thirty-six cazas, who were under his jurisdiction. When the requisite works are finished, the mine of Kieban will yield annually 1000 oke of silver, and a great quantity of litharge. The mine of Argana can produce 200,000 batmans of copper (the batman is six oke). This latter mine is twenty-two hours' distance from that of Kieban, and twenty hours' from Diarbekir. The country is completely barren of forests, and the conveyance of provisions for Kieban is by the means of rafts, supported by the skins of sheep or goats, that are inflated; this being the only system of transit known from the mouth of the river up to Bagdad; persons also travel on these *kelleks* (the name given to the raft), and they are so constructed, which, added to the dexterity of the watermen, that the traveller is secured against any danger from the cataracts. It was by this conveyance that the antique relieves of Nineva, dug out from the depths of the earth at Khorsabad, under the direction of Messrs. Botta and Flandin, arrived at Bagdad. This is a very ancient method of travelling, as it is mentioned in the history of the Medes and Persians, as the arts and sciences have never as yet made any progress in Mesopotamia. At ten or twelve hours' distance from here is the tribe of the Kurdes of Derim (which means silver port, in Persian), who occupy an extensive country, extending as far as the Lake of Van, a part that has never yet been subdued; nor well explored. The country is very mountainous, and the entrance extremely difficult, so that few travellers ever penetrate it; there are, however, a great many rich mines; the Kurdes make their own iron, and produce, by a single fire, the quantity of lead necessary for their use; they are either brigands or shepherds, so that the Porte will have some difficulty in subduing them. In laying the foundation of a bridge at Perleek, on the Euphrates, they found very recently a bed of silver ore, an assay of which was made at Kieban, and found to be very rich in metal; as the conveyance of ore to Kieban by the Euphrates will be easy and very little expense, there will be no difficulties to encounter in working it; this verifies the experience daily made, and so often repeated—one has only to turn the soil of Turkey, when it will issue forth the greatest riches of Nature. Here the forests are at some distance from the mines, in consequence of which the Government was desirous of having some plantations made, for which purpose they invited an Austrian officer, belonging to the office of Woods and Forests; he tried the planting of an orchard, but the result was not successful, as the mountains are extremely barren, and the clouds seldom or ever float over them, so that there is moisture wanting, that vegetation may grow. In summer, the thermometer of Reaumur rises to 38 deg. At a short distance from Karpeut, there is a lake ten to twelve miles in length, by two broad, situated at a considerable height, the water of which is saline, and contains alkalies. To plant wood in the vicinity of the mines would be an extraordinary expense to Government, but every encouragement is given for the working of the mineral riches with which Turkey abounds; and, in a few years hence, they will be of great importance, as smelting-houses, furnaces, and forges are being erected on a large scale in various parts in the vicinity of the mines of silver, iron, and lead."

PRICE OF IRON IN FRANCE.—At the last sales at St. Dizier, the following were the quotations per 1000 kilogrammes, or ton, delivered at St. Dizier:—Half-rock wrought-iron, made by coal, 16l. to 16l. 10s.; flattened iron, 14l. A sale of 1,000,000 kil. (or 2,000,000 lbs.) of white metal has been contracted for, to be delivered at St. Dizier, from the month of March, 1846, at the rate of 7l. 15s.

THE GAUGE QUESTION.—At the Society of Arts, on Wednesday last, a paper was read on Certain Improvements in Constructing the Locomotive Engine and permanent Way of Railways, with reference to the question of Wide and Narrow Gauge, by J. G. Bodmer, Esq., formerly of Manchester, now of London. In this paper, the author examines the question of the relative merits of wide and narrow gauge; he ascertains that the question is not one either of relative safety or danger, but that it resolves itself, ultimately, into this question—whether gauge will admit of the most perfect means for obtaining high velocities, with greater regularity and economy? At present, he admits the broad gauge has the advantage in more powerful and speedy engines; but he then proceeded to show that by placing the cylinders outside, and by increasing the fire-box and flue surface, in the manner he proposes, and by adopting the principle of compensation, as, in his double piston locomotives, high velocities may be obtained with security, safety, and advantage. In short, that as powerful an engine in every way may be placed on the narrow gauge as on the wide one, and one equally well adapted to high velocities. He then went on to show how the chief limit to increase of power, and the corresponding increase of weight in locomotive engines consists not so much in the construction of engines, as in obtaining a permanent way, suitable for the support of such enormous loads. By these loads, at high velocities, concussions are produced, which derange the permanent way, and are at present the chief sources of danger and cost, and the chief limit to speed. He approves of the triangular sleeper, originally invented by Reynolds, and he proposes to use a modification of that on a larger scale as a longitudinal bearing. He also proposes that the breadth of the rail should be so increased as to diminish the continual attrition, so destructive to wheels, and procure greater durability. In the conclusion of the paper, he suggests that an experimental railway ought to be constructed, either at the expense of Government, or of the joint railways, for ascertaining the best means for giving the increased velocity, which the public are beginning to demand, in the best manner. The paper gave rise to a long and interesting discussion, which elicited the opinion of engineers and scientific men present, on the merits of Mr. Bodmer's plan. The principle on which his engines are constructed were approved by all who spoke on the subject, and the thanks of the meeting were unanimously accorded to the author.

INSURANCE COMPANIES.—It is probable that the generality of our readers are not aware of the enormous profits made by these companies, or of the fact that, while they form the nucleus from which springs so large a portion of individual comfort, domestic happiness, and even national benefit, they form so profitable a source of speculation to the capitalist. We will take nine of the principal offices, and compare the price paid up on the shares, with their value in the market. The Atlas, 5l. paid, worth 17l.—increase 240 per cent.; Guardian, 36l., 50l.—increase 40 per cent.; Imperial, 10l., 16l.—increase 67 per cent.; Law, 10l., 49l.—increase 390 per cent.; Legal and General, 2l., 6l.—increase 225 per cent.; Rock, 3l., 47l.—increase 375 per cent.; Sun, 10l., 47l.—increase 370 per cent.; Universal, 62l., 18l.—increase 166 per cent.; Royal Exchange, 100l. stock, 188l.—increase 88 per cent.: showing an average increase on the nine companies of 218 per cent.

MINERAL RESOURCES OF FRANCE IN 1844.

We continue our extracts from the official returns of the statistical operations of the administration of the Ministry of Public Works and Mines for 1844.—The working of large or bar-iron and cast metal is carried on in eighty different departments of France—drawn iron, hammered, and flattened iron. *Refineries.*—Cast and moulded metal, &c., produced 1,279,173l. For hammered and flattened iron there are 165 heating furnaces, and 136 ovens; number of workmen, 1370. Material employed—large iron, 441,651 metrical cwts.; charcoal, 3966 cwts.; coal, 219,976 do.; coke, 44; peat, 227 cwts.; and, wood, 4016 cords; total produce of small iron, 403,190 cwts.—value, 720,528l. *Fineries.*—Heating furnaces, twenty; do. ovens, sixty-eight; number of workmen, 959. Material consumed—large iron, 303,892 cwts.; coal, 82,149 cwts.; charcoal, 345 cwts.; peat, 1325 cwts.; wood, 39,335 cords; produce of cast metal, 975,452 cwts.; iron wire furnaces, fifty-one; number of workmen, 569. Material employed—large iron, 158,034 cwts.; coal, 51,907 do.; wood, 7562 cords; produce, 146,555 cwts. Moulded metal of the first fusion—101 high furnaces; number of moulding workmen, 3373; material employed for moulding, 550,520 cwts.—produce, 550,520 cwts. Moulded cast metal of the second fusion—reverbating ovens, seventy-five; moulding ovens, 471; number of workmen, 6013. Material used—rough metal, 754,137 cwts.; coal, 47,853 cwts.; charcoal, 2150 cwts.; coke, 244,576 cwts.; and wood, 754 cords—produce of cast metal of the second fusion, 691,555 cwts.; value, 1,035,656l. In making a *resumé* of the relative results of the working of large iron and cast metal, the number of workmen is 14,529; the quantity of fuel employed was, coal 754,617 cwts.; charcoal, 6593 cwts.; coke, 244,620 cwts.; wood, 75,491 cords; and, turf or peat, 3658 do.—total value of fuel, 127,459l.

"Steel is manufactured in eighty departments of France—the return of wrought metal was 35,273 cwts.; do. by cementation, 58,121 cwts.; the total amount produced from the melting or fusion of steel, forged steel, cemented steel, scythes, files, and rasps, produced 294,719l. The manufacture of forged or wrought steel is, by means of low furnaces, heated with charcoal, of which there are twenty-one, and refining furnaces, seventy-one; number of workmen, 246. Material employed—cast metal, 47,709 cwts.; coal, 12,338 cwts.; charcoal, 80,088 cwts.—produce, rough steel, 35,273 cwts.; iron, 3521 cwts. The manufacture of cemented steel, properly called *iron steel*—the best qualities of which are produced in England, Sweden, Norway, and Russia, are converted into rough steel by the prolonged contact with charcoal at a high temperature in closed cases—there are fifty-four ovens of cementation; ninety workmen. Material employed—57,686 cwts. of iron; coal, 46,935 cwts.; charcoal, 4235 cwts.; wood, 2090 cords; produce of cemented steel, 58,121 cwts. *Fusion of steel.*—The rough cemented steel is broken up in small pieces, then melted in heated earthen pots at a very high temperature in wind furnaces, heated by coke, and then run off into bars; the number of melting ovens is 123, and workmen, ninety-two. Material employed—different steels, 15,690 cwts.; coal, 33,961 cwts.; coke, 28,434 cwts.—produce of cast steel, 16,221 cwts. In making a calculation of the results of the different branches of steel working, the number of workmen employed is 2924; consumption of fuel—coal, 275,929 cwts.; coke, 28,815 do.; charcoal, 95,315 do.; wood, 2433 cords; total value of fuel used, 51,386l; grand total of the produce of cast metal, iron, and steel—viz., 1st, by the extraction and the preparation of ore; 2d, by the manufacture of cast metal; 3d, do. large iron; 4th, large iron and cast metal; 5th, the different workings of steel—making a grand return of 6,096,522l. sterling. The iron ore consumed in the high furnaces, and the Catalan and Corsican methods, form a total of 12,026,289 cwts., either native or imported from Germany, Tuscany (Island of Elba), Switzerland, the United States, and other countries; the cast metal used by the iron forges, steel, and moulding manufactories, form a total of 5,133,211 cwts., derived as follows:—New native cast metal, 4,226,219 cwts.; new metals imported—viz., Belgium, 215,213 cwts.; Great Britain, 176,332 cwts.; German Company, 19,632 cwts.; Sardinia, 5536; the Two Sicilies, 5098 cwts.; other countries, 1258 cwts.; old metals, &c., 484,923 cwts. The quantity of large iron produced by the French forges or imported from foreign countries, form a total of 3,179,686 cwts., divided as follows:—native iron produced direct from the ore, 108,451 cwts.; do. from the refining of cast metal, 2,975,999 cwts.; iron imported from Sweden, 56,539 cwts.; Great Britain, 8630 cwts.; Russia, 5870 cwts.; Sardinia, 973 cwts.; Tuscany, 798 cwts.; Norway, 672 cwts.; other countries, 565 cwts.; rails imported from England, 21,189 cwts. Rough steel, or in bars, produced in the French factories, or imported from foreign parts, form a total of 100,882 cwts. as follows:—rough steel, made in the native forges, 35,273 cwts.; do. cemented, 58,121 cwts.; steel bars imported from Great Britain, 2123 cwts.; Westphalia (by the German Company, the Netherlands, and Belgium), 4373 cwts.; from Styria and Carinthia, Austria, Sardinia, Tuscany, and Switzerland, 967 cwts.; other countries, 23 cwts. In 1843 there only existed throughout France nine departments instead of seventy-nine as at present, in which could be named either of the five branches of iron industry enumerated in the above table—viz., Lower Alps, Upper Alps, Cantal, Creuse, Gers, Upper Loire, Lozère, Vendée and Seine, and Maine. The quantity of fuel consumed in the working of the cast metal, iron, and steel was as follows:—1st, for iron ore, 53,604 cwts. of coal; charcoal, 749; wood, 15,202 cords. 2d, in the manufacture of cast metal, 548,351 cwts. of coal; 1,878,116 of coke; 4,066,659 charcoal; 627,796 cords of wood. 3d, in the working of large iron—coal, 3,315,068 cwts.; coke, 258,852; charcoal, 1,917,718; wood, 3542 cords; do. peat, 3887 cwts. 4th, large iron and cast metal—coal, 754,617; coke, 244,620; charcoal, 6593; wood, 75,491 cords; do. peat, 3659. 5th, in the manufacture of steel—coal, 275,929 cwts.; coke, 28,815; charcoal, 95,315; wood, 2433 cords—grand total, 4,947,569 cwts. of coal; do. 2,410,403 coke; do. 6,087,034 charcoal; 724,464 cords of wood; and, 7546 do. of peat or turf; the total value of which was 2,346,686l. Metals other than that of iron have been designated under the name of *concession*, being the metalliferous bunches or lodes that have been conceded; under the name of *mines*, the lodes which, without having been conceded, appear to be of some importance; and, lastly, those under the name of *gites* or beds, the importance of which cannot be truly ascertained, but only according to the indication of ore in the veins. Section 1st, the whole of the various minerals produced in the different departments throughout France are classified under fifteen heads:—1st, copper, forty-seven mines having two steam-engines of 16-horse power, producing 310 cwts. of refined copper; sulphur, 3500 do.; double sulphate of copper and iron, 30 do. 2d, lead and antimony, sixty-two mines, 27 cwts. 3d, lead and silver, 130 mines, 32 hydraulic engines of 680-horse power, yielding 2500 cwts. of silver, 2278 of lead, and 5643 of litharge. 4th, lead, copper, and silver, forty-two mines (produce, none). 5th, silver for amalgamation, four mines, three hydraulic engines of 54-horse power—200 cwts. 6th, tin, six mines or beds (none). 7th, antimony, forty-six mines or beds, one hydraulic machine of 4-horse power, yielding 732 cwts. of antimony, 776 do. of melted sulphur of antimony, and 35 do. of crocus. 8th, gold, eighteen mines or beds (none). 9th, mercury or quicksilver, four beds (none). 10th, zinc, four mines (none). 11th, manganese, twenty-nine mines, one steam-engine of 12-horse power, producing 19,580 cwts. 12th, chrome, two beds (none). 13th, cobalt, two mines (none). 14th, nickel, one mine (none). 15th, arsenic, two mines (none). being a total of 399 mines or beds, employing 738 steam-engines of 28-horse power, and thirty-six hydraulic engines of 738-horse power. The whole of these mines that are worked, as where there is no return they are discontinued, only yield an annual value of 1,402,404 l., or about 56,097l. sterling. Section 2d, the working of bituminous minerals, both mastic and liquid, was, calcareous or rock asphaltum, 11,165 cwts.; bituminous mastic, 9829 do.; mineral bitumen, 9475; mineral oil, 2506—total value, 15,108l. In 1838, France imported from Great Britain, 9046 cwts. of coal tar, which, in 1843, was decreased to 1295 cwts.; in 1839, the quantity of asphaltum imported from the United States, Belgium, and the German Union, was 2956 cwts.—whilst, in 1843, it was 198 cwts.—in 1840, she imported 43,400 cwts. of asphaltic rock from Switzerland and Savoy, and, in 1843, only 7760 cwts. Section 3d, the working of pyritic and aluminous earths, and pyritic peats or turfs, are classified as ten mines, and seventeen manufactories of alum and coppers or vitriol (sulphate of iron); the quantity of alum produced was 36,407 cwts.; magnesia, 26,950 do.; sulphate of iron, 34,543 do.—total value, 72,929l. Section 5th, the working of sea salt, saline marshes, washing of sand, saline springs, and mines of sea goma or rock salt, has returned as follows:—there are seventy-one salt marshes of the superficie of 26,222 hectares or acres; 256 salt washing establishments in full work, and 281 not in operation; one mine (in the Morthe) of 1981 hectares; eleven salt springs worked, and eight not worked; number of workmen employed, 17,264; annual salaries of the same, 61,249l.; quantity of salt obtained from the marshes and the washing, 3,293,612 cwts.—value, 464,333l. do. from the mines and salt springs, 484,947 cwts.—value, 169,592l.—total weight produced, 3,778,559 cwts., of

the value of 633,514l. sterling (this is under the monopoly of Government). The quantity of fuel used in the working of the metals other than iron—mineral bitumen, aluminous earths, and the sea salt, in the above sections—was, during the year, as follows:—coal, 264,158 cwts.; lignite, 90,728 cwts.; coke, 8448 cwts.; charcoal, 8604 cwts.; wood, 51,568 cords; and, peat or turf, 19,279 do., of the total value of 42,608l.

[To be concluded in next week's Mining Journal.]

METALLURGIC TREATMENT OF GOLD AND SILVER ORES IN HUNGARY AND TRANSYLVANIA.

In former Numbers of the *Mining Journal*, we have given various articles on the mineral resources of different countries, both in Europe and South America; we have now great pleasure in translating the following interesting article from the *Annales des Mines*, by M. Audibert, which, no doubt, will be acceptable to our mining readers in general:—

"The method followed in the treatment, by fusion, of gold and silver ores, was formerly uniform in all the forges of Hungary. It is well known that it consisted in, first of all, isolating entirely the work of the auriferous ores from that of lead ore, and not to employ, as agent of disintegration, anything but metallic lead in proper proportions, to reduce to their minimum the losses experienced in this metal. The lead ores were very scarce; it was, therefore, requisite to be very sparing with this indispensable agent of production; and whilst, for a long time, the process of imbibition was replaced at Freyberg by methods less imperfect, they were obliged to continue them in Hungary, so as not to retard the activity of the works. It was soon seen that the Saxon method did not present all those advantages which had been first given to them at Freyberg; the quartzose nature of the *gangues*, or beds of the Hungarian ores, which would greatly increase the considerable losses in lead which was experienced in melting the argentiferous ores, mixed with roasted galena. Therefore, all the experiments made at the latter end of the last century, for ameliorating the metallurgy of the precious metals, were directed in various ways. They tried the means in the amalgamation, to render the production of the silver mines independent of those of lead; when it was found by experience, that this process could not, in general, be substituted in Hungary by the fusion treatment, and they were obliged to return to the old system, by introducing, however, only some modifications, important enough relative to the form and dimensions of the ovens or furnaces. But since the last thirty years, the position of the mines and the furnaces are very much changed. The silver mines in the districts of Schemnitz and Nagy-banya, hitherto so celebrated for their richness, have become very much impoverished, and only furnish but a small proportion of rich ore. On the other side, the extension given to the subterranean works to discover new beds or lodes, was the means of discovering more lead ores than that of silver, properly speaking,—so that they were obliged, if not entirely to adopt the Saxon process, to simplify the former system so as to make the lead, or lead substances, to act with greater force. In former times, the expense of fuel was only a secondary consideration, when the forests still surrounded the works; but at present it is much altered, having greatly increased in price. The great object was to discover the means of preventing the extensive losses of metal and fuel, which the method of imbibition that had been adopted created, even were it necessary to employ a greater quantity of lead. The first experiments were made in 1825, at Nagy-banya, by M. de Swaicz, Conseller of Mines, whose splendid works have placed him in the rank of the most skilful metallurgists. The success that he obtained determined their adoption in the districts of Nagy-banya and Schemnitz, by the mixed methods, which partake more or less of the Saxon process, and the old one of imbibition, which harmonises with the rich nature of the ores that are treated. In Transylvania, where the scarcity of lead ore has been always felt, they have been obliged, with few exceptions, to confine themselves to the ancient system, notwithstanding that the ores may be very auriferous.

"Hungary, properly speaking, is divided into four mineralogical districts—viz., Lower Hungary, Upper Hungary, and the countries of Nagy-banya and Banat. The confines of Upper and Lower Hungary are very inaccurately defined, as they apply to two countries placed in the same latitude, and both covered with high mountains; so that their separation is nearly artificial, as the chain of mountains which forms the common limit, is scarcely higher than those which wind along the country from east to west. Nothing, therefore, shows why there should be any distinction, except that Upper Hungary is the most approximate of the central chain of the Carpathians; and for this reason, in the present day, these distinctions are only used by the administration of mines to designate, in a more brief manner, the two adjacent mineralogical districts, the chief towns of which are Schemnitz and Schmollnitz. The mines of Lower Hungary are grouped in a very confined radius, in the vicinity of the towns of Schemnitz, Kremnitz, and Neusohl. They chiefly yield auriferous silver ores and galenas, scarcely sufficient to furnish the lead necessary for the extraction of the silver. The copper ores, generally, are only met with in the argentiferous veins. There exists, however, in the environs of Neusohl, several lodes, such as those of Libeth-banya, Herregrund, &c., where the copper ore constitutes the chief object of exploration. The veins of Schemnitz and Kremnitz are nearly exhausted; and it is not very likely, although works have been carried on in a gigantic manner for some years, that they will discover the former prosperity of these mines, as experience has proved that their richness decreased rapidly according to the depth from the surface. There remains, therefore, very little hope of meeting with new lodes, especially in a country that has been, for the last ten centuries, the object of the most active explorations. The copper mines in the environs of Neusohl yield, at present, but a very small quantity of ore; and, no doubt, will soon be abandoned. Three furnaces—those of Neusohl, Kremnitz, and Scharnowitz—are entirely devoted to the treatment of silver ores by fusion. The lead they employ is derived from the various small foundries situated in the environs of Schemnitz, the greater part of which belong to private individuals. There exist only two copper works—those of Alt-Geberg and Tajoava: the copper ores are only melted in the first one. The second one is used for treating of sheet copper, which is derived from the silver ores and black copper of Alt-Geberg. Formerly, they used to have their black, argentiferous coppers, from the foundries of Upper Hungary, so as to make them undergo a liquidation; but the complication of this process, and its imperfections, relative to the extraction of the gold, has caused it to be abandoned in the preparation of cast metal. At present these are treated by litharge in the hand furnace, as will be seen later; whilst those of Upper Hungary pass to the amalgamation furnace of Schmollnitz. The only iron foundries which exist in the district of Schemnitz are those of Rhonitz. Upper Hungary yields but a very small quantity of gold and silver; there are, however, a few scattered mines of little value in the province of Schmollnitz, which furnish the amalgamation furnace of Arany-Ikka. The treatment of copper ore is one of considerable importance. The rich mines of this ore are found in the environs of Schmollnitz, and belong to the Government. They yield the vitriolic water, or *aqua fortis*, which is worked at the extensive factory of cementation of Schmollnitz—also, pyritic copper and grey copper, very argentiferous. The cementated copper, and the pyritic minerals, undergo, in these two factories, a treatment which consists in being cast twice in the half furnace, and the black copper is refined by the small oven. The grey copper is melted in the furnace of Altwasser, and the black copper that comes from them is submitted to an amalgamation in the furnace of the former. The residue of the amalgamation passes in the casting of the non-argentiferous ores. Besides these establishments which belong to Government, there exists, in the environs of Leutschau and Iglo, a large number that are worked by private individuals; they are on rather a small scale, badly directed, and present no interest. In several localities, the grey copper includes a large portion of quicksilver or mercury, either combined with *fahlers*, or in the state of cinnabar. Upper Hungary comprises a great number of iron foundries, belonging to private individuals,—the produce of which is exclusively confined for furnishing implements of agriculture in Northern Hungary, for which purpose, there are numerous small furnaces on the banks of the river; and in the environs of Stosz, Rosenau, and Tizolesz, they work the large iron which is sent from the great forges situated in the vicinity. All these manufactories are of an inferior quality, notwithstanding that the ore is very abundant in that part, and that the forests are far from being exhausted. It is, therefore, not probable that the making of iron will ever be carried to a very great extent. The means of communication are wanting everywhere to convey the produce at a cheap rate into the centre and the south of Hungary, where are the central demands of consumption, which are more easily supplied by the foundries of Styria and Carinthia, placed in every way more advantageously than those of Hungary. The district of Nagy-banya, the same as that of Schemnitz, principally supply the auriferous ores: the mines have, however,

lost a great deal of their richness, but they promise better than those of Lower Hungary; and, above all, the mineral is very auriferous, and the small quantity of gold that is obtained by washing fully repays the expenses. The chief mines are opened in the vicinity of the small towns of Nagy-banya and Kapnick; their produce is treated in the four furnaces of Femesely, Kapnick, Lapos-banya, and Bajuts. The lead ore employed in the extraction of the silver, is supplied from the mines of Felsobania; and the metallic lead by the foundries established in the same locality. One copper furnace, of very little importance, at Borsa, annually sends out 1,000 quintals (or cwts.) of this metal. The chief town of the mineral district of Banat is the small town of Oravica, which nearly occupies the middle of a line running north to south, under which are all the copper mines. The extraction of this metal is by far the most important branch of the mineral industry of the country; and, notwithstanding, the annual production does not exceed more than from 5000 to 6000 cwts. Forty years ago, it was six times greater. This enormous decrease can only be attributed to the bad management of this mineral property, and the impoverishment of the lodes; and the working of them has always been conducted on the worst system—irreparable faults have been committed, which never can be overcome. The copper mines form four centres—Oravica, Dognaska, Szaska, and Moldava—and furnish five foundries; that of the first alone works argentiferous ores, consisting of grey and pyritic copper, mixed with galena. The black copper is very rich in silver and lead; and successively undergoes the process of liquidation and amalgamation. Formerly, they treated, at Dognaska, the auriferous and argentiferous copper from the silver furnaces of Transylvania,—but for some years past, they have been obliged to renounce it, in consequence of the difficulties of conveyance. The other four furnaces treat, in a very imperfect manner, carbonated copper, silicates, sulphuretted pyrites, non-argentiferous, &c. To the quantity of gold and silver, which the black copper of Dognaska yields, there must be added that supplied by the mine of Rea-banya, situated on the frontiers of Transylvania, and the washings of the auriferous sands which the Zigeiners have practised from time immemorial. The only manufactory of zinc which exists in Hungary, is situated at Dognaska,—and sends out annually 2,000 cwts. of rough zinc. The government possesses, besides, three iron foundries, which produce annually 12,000 cwts. of iron of an inferior quality. Transylvania forms but one district, and all the metallic mines, if we except two or three workings that have been opened in the province of Szacklers, and on the frontiers of Moldavia, are concentrated in a circle that is not more than thirty kilometres in diameter, in the mass of the mountains of Bihar, which separates the large plain of Hungary from that of Transylvania. The chief centre of the works is at Zalathna, Nagyag, Abrud-banya, Verespatak, and Offen-banya. The three foundries or furnaces of Zalathna, Offen-banya, and Cserdets, are devoted for the metallurgic treatment of auriferous and argentiferous ores. The lead they employ is obtained from the factory of Radnau, situated near Offen-banya. There only exists, throughout all Transylvania, one iron foundry—that of Vajda Hunyad—and is of little importance.

The produce of the various establishments we have enumerated, was, during the year 1844, as follows:—

	GOLD.	SILVER.	COPPER.
Lower Hungary ..	500 marcs, (250 lbs.) ..	30,000 marcs ..	4,000 quintals (cwts.)
Upper Hungary ..	100 " ..	10,000 " ..	18,000 "
Nagy-banya ..	600 " ..	20,000 " ..	1,000 "
Banat ..	100 " ..	2,000 " ..	5,000 "
Transylvania ..	2,500 " ..	6,000 " ..	" ..
Total ..	3,800 marcs (1,900 lbs.) ..	68,000 marcs ..	25,000 quintals.

"Iron being chiefly made in the foundries or furnaces, belonging to private individuals, it would be rather difficult to know the exact, or even approximate quantity, which is annually sent to market."

(To be continued.)

THE COAL MONOPOLY IN FRANCE.—We have alluded, in former Numbers of the *Mining Journal* to the amalgamation that has recently taken place between the extensive coal-pit proprietors of St. Etienne, and the basin of the Loire; and the complaints that this has given rise to from the small colliery masters, who have been petitioning Government on the subject. We previously announced that Monsieur Mignaron, Inspector-General of Mines, had been deputed by the Minister of Public Works, to make a report on the situation or junction of the coal mines of the Loire. The Government seeing the evil tendency that may result to the public in general from these combinations of monopolists, have issued an order, or decree—Article 1st. That the Inspector-General of the Division of the Centre shall immediately proceed to the departments of the Loire and the Rhone. From a general plan of the coal basin of the Loire, he will have, on one side, the parties who hold concessions represented, especially that portion that is in the hands of the Society of the Mines of the Loire, and on the part of the holders of grants not coming within the society's grants. He will thoroughly inquire into all the facts to be considered under present circumstances, and concert with the prefects of the Loire and the Rhone, and the mayors of Lyons, St. Etienne, and Rive de Gier, as well as the mining engineers of the district of St. Etienne.—1. If the concessions which do not belong to the Society of Mines of the Loire, can, in consequence of the conditions of working them, sustain themselves either separately or by grouping in their turn with the different interests they profess to represent, under the weight of the competition that the society is making against them.—2. If the undertakings of this society are licit in the eyes of the law, as far as concerns the working of the major part of the concessions of coal, in the coal basins of the Loire, the working of the canal of Givors, and the railway from St. Etienne to Lyons.—3. What consequences, in supposing it to be licit, can this undertaking have, relative to the production of the coal, the sale price of this fuel at the pit's mouth, its carriage expenses, as well on the canal of Givors, as on the railway from St. Etienne to Lyons, and (lastly) the state of the miners.—4. What measures, under any circumstances, will it be necessary to adopt, so as to insure the economical management of the coal beds, to guarantee the proprietors of furnaces and forges, as well as the markets that are supplied with coal, from the effects of monopoly; lastly, to have the salaries of the workmen in such mines properly regulated, according to the price of the material worked.—5. What measures to be adopted to prevent this system of concentration of the rich coal seams, which already weighs so heavily on the smaller holders of collieries in the basin of the Loire, extending itself to any other coal mines in the kingdom. (Signed) Duxort, Secretary of State for Public Works.—This coal question in France has excited a very great interest among all the proprietors of mines of every description, and particularly the iron masters—as, should the Government allow opulent parties to amalgamate their interests, in mines, by entering into a monopolising company, thereby commanding nearly the whole of the trade, they will be enabled at all times, not only to govern the markets, but prices also. Notwithstanding all the efforts making in France to work the coal mines on an extensive scale, they have, in very few instances only, been successful. In consequence, the generality of the mines are in hands of parties, whose means are rather confined; and when opulent companies have formed themselves, they have attended more to keeping the mines in their own hands, instead of extending the works in proportion, as they know they have but few competitors, and can, consequently, obtain high prices. It is this scarcity, as well as the exorbitant charge for fuel of every description, either coal, coke, charcoal, or wood, and the expense of carriage, that are the chief drawbacks to the progress of mining operations in a large way, as the miners, generally speaking, are obliged to sell their ores or metal without delay, so as to meet the outlay. Therefore, it is to England or Belgium that the contractors are driven to resort to for their coal and iron, so as to meet their engagements; and should a reduction of the duty on these necessary articles be passed during the ensuing session of the Chambers, the importations will increase in a very extended scale, as both are at most exorbitantly high prices in the departments; the forge masters having the greatest difficulty, not only in procuring sufficient metal, but fuel also.

MINIATURE STEAM-ENGINE.—Scarcely a week passes without some new addition to the already numerous collection of science and art at the Royal Polytechnic Institution, and the admirable arrangements made to facilitate the communication of knowledge to those who have a zeal for the study of the chemical and mechanical sciences, must insure the institution most extensive patronage; the last introduction consists of a miniature steam-engine. This Lilliputian engine is one of the most elegant adaptations of pneumatic science we have ever had the gratification of seeing: his Royal Highness was pleased to pay a high compliment on the great ingenuity and beauty of its construction. This miniature engine has a fountain attached, which plays as long as the apparatus continues in motion—the whole forming an elegant article of virtu, and is a fine specimen of British industry. The steam is generated by spirits of wine, and carries out the whole process of a stationary engine, having a cylinder of five-eighths of an inch diameter, with pump, cranks, fly-wheel complete; the fountain is attached, and plays in a globe of glass, in which may be placed gold fish. It presents one of the proofs that the useful and elegant may be so combined as to produce sensations of extreme gratification. This beautiful little *bijou* was designed by Mr. T. Smith, and is now deposited for public inspection at the Royal Polytechnic Institution. In this case, however, the motion is given by atmospheric pressure. We understand there are numerous novelties in preparation for the Christmas visitors. New lectures on chemistry and natural philosophy by Drs. J. Ryan and Bachmoffer, and the musical department, under Dr. Wallis, will also be a prominent feature in the approaching holidays and festive season of the year.

Original Correspondence.

THE DYING STRUGGLES OF SWINDLING RAILWAY SCHEMERS.

Sir,—We are now arrived at another station of railway fraud. The recent panic having smitten down the strength of countless bubble companies, attempts are now being made to bully parties, presumably responsible, into immediate payment of monies for the equitable adjustment, forsooth, of the said companies' concerns; the real intent being coloured over, as usual, with a daubed delusion about "good faith to the public," and other plausible clap-traps. But the time is, I trust, come for stripping off these rags of refuge, and disclosing railway rascality in all its hideousness to the public. All the threats of proceedings at common law, and the still more horrible menace of suits in chancery, proceed from the legal get-together of railway bubble companies, who see that the hope of their gains is gone, and who are now making a last effort to plunder timid shareholders and others under colour of law. One of their sham pleas is the opinion of some great legal authority; cases, designated A.B.C., are craftily drawn up, so as to blink all the justice of the proposed question, and, upon these crooked cases, barristers of note give opinions, which, "by decision, more embroil the fray." A grand point is to force parties, to whom shares were said to be allotted, to pay deposits, in order that these compulsory contributions may be applied to the liquidation of solicitors' bills; but, what is the real state of the case? why, that allotments, now penally enforced, were kept back by committees to uphold premiums, and now, when they have fallen to a beggarly discount, the allottees are called upon to give Bank of England notes in exchange for waste paper. An opinion, emanating, it is alleged, from the Solicitor-General, affords some countenance to this enormous exaction; but, as I am accustomed to associate law with justice, I beg to dissent from Sir F. Kelly's well-paid opinion on the A.B.C. cases. I venture to maintain, that the issuing and accepting of shares constitute a contract between two parties. A party applies for shares, the committee have the option of refusing or acceding, and, if they accede and notify their allotment, then, I say boldly, that the contract is not completed until the allottee consents to accept the allotted shares. If this were not so, allotting committees would have a terrific power beyond any known law. For, just remark how this despotism would work? I apply for shares when they command a premium, my application is not acceded to until the shares sink below par, if I am forced to take these reduced shares, the company robs me; but, if, on the other hand, my circumstances are altered in the interval, and I am constrained to take shares bearing a premium, but for which I cannot pay, I must, however unwillingly, rob the company! Look at this dilemma, ye sages of Westminster-Hall!

My advice to parties, menaced by the subtle solicitors of companies, about to give up the ghost of fraudulent project, is to pay no attention whatever to these mock thunderbolts. If you instruct your solicitor to defend you by appearances, &c., you are lost; for you will be entangled in a legal mesh, from which you cannot extricate yourself. Let the adverse parties fire away at their own expense, and, depend upon it, they will soon be tired of paying for their own powder and shot. It is the love of litigation that supports the supremacy of lawyers. If clients were not so credulous, and did not bleed so freely, some fifteen thousand lawyers could not rule over this little island.—THOMAS MULLOCK, Dec. 18.

ON MANURES—MINERAL AMMONIA.

Sir,—The general readers of the *Mining Journal* will be at first surprised to see the subject of manures introduced into its columns; while the land-owners and agriculturists, should they ever take a peep into it, will ridicule the propositions I am about to make—accustomed (as they have been) to consider nothing as really valuable for manure, but stable or farm-yard dung, or that of sea fowl brought from far countries; but the fact is, that nothing is required to fertilise land but what may be supplied by the judicious application of the redundant minerals of the United Kingdom. It is the fashion now-a-days to regard ammonia as the essential principle of all manures. Ammonia may be produced from a compound of pure metallic iron, and some of the sulphurets, as those of soda and lime, when treated with moderate warmth and moisture. To prepare these compounds, little else is required in addition but coal—all mineral substances. But ammonia is not really the solid food of plants—it is only a vehicle for conveying it. Carbon is, unquestionably, the basis of nourishment for vegetation; but, inert of itself, it requires ammonia, and other influences, to prepare it—to act as solvents, or otherwise, rendering it either gaseous, to be absorbed by the leaves, or liquid, to be taken in by the roots of plants. As decomposing vegetable matter, carbon is in a forward state for reception by the organs of growing vegetables. Still, other agents are required to assist in its reformation; when abundant, and other agents, regarded either as chemical or electrical, are wanting, it is for the most part inert, and the land unproductive. Oxide of iron is an important feature in the composition of all the most productive soils. It would be the most useful agent to apply where there is a great accumulation of inert vegetable matter. The mines of rich red iron ore of this district (Devonshire), and other parts of the United Kingdom, will furnish abundance of oxide of iron for agricultural purposes, when the fever of this iron age abates a little, which will happen by-and-by. I propose to add this ore ground to all black peaty soils, when drained as well as circumstances will admit of. On the other hand, some soils contain an excess of oxide of iron—hungry lands, always crying out, "Give, give!" To these, in localities where abundance can be procured, I would propose to add all kinds of vegetable matters, including peat; but, when these are deficient, to apply mineral carbon, as refuse small coal, but would recommend, more particularly, the small of anthracite coal, and to use it ground fine. Abundance of the latter may be had from Milford Haven, and other ports in South Wales. The land I here allude to is easily known by the red colour of the soil—vegetable matter will exhibit its effects more immediately, but the mineral will be more permanent. To poor lands, deficient of both—those looking in dry weather of a pale yellow or white colour—I propose to add a mixture of oxide of iron and carbonaceous matter, vegetable or mineral, according to the facilities of procuring the one or the other. When soils have become fairly charged with a due mixture of oxide of iron and carbonaceous matter, I propose to apply to the land some of the metallic compound for producing ammonia, already alluded to, in the spring of the year—say, during the first dry weather. The preparation of this compound requiring chemical knowledge, and manufacturing apparatus, must be left to the management of companies; but the first consideration must be to get the land into proper order, to give it its due proportion of oxide of iron and carbonaceous matter, to form the basis of a general system of mineral manuring. This part of the subject requiring little scientific research—merely attention to the nature of the soil—might be undertaken by the farmers themselves, if any parties would set them agoing. Two years since it would have been a boon to the iron ore workers to have found them such a market: now, they don't want any new markets—they have enough to do to supply their old customers, the iron manufacturers. Still, there must be large deposits of such ores unworried; and to the proprietors of such, this should be matter for consideration. I imagine that the Pembrokehire coal owners will not be backward in availing themselves of a new market for their culm. In my ramblings, I hear sometimes about manures and agriculture; and, in my musings, I have been devising the means of supplying the deficiency of the ordinary agricultural manure (arising, as it strikes me, in part, from so large a proportion of the produce being consumed away from the land, in large towns), of which I send you this brief outline. Your correspondents may enlarge upon it, and possibly you may hear more on the subject from—A HERMIT IN FURNACE, December 16.

MISCELLANEOUS.

Sir,—When at Dudley, the other day, the miners talked about (what they called) "white damp;"—they said their candle would burn in such a medium, while a person would fall down "like a shot." This is a phenomenon unknown to chemists; and from their obscure, confused, and perplexed account of it, I am inclined to consider the whole a mere fable; but the penetrability of the gases, and their tendency to commingle, even contrary to their relative specific gravities, as shown by Dr. Dalton, has yet received no attention, in reference to an estimate of the gases of the mine, and yet the fact should not be overlooked.

I notice that a person of the name of Webb has propounded a plan of removing the "fire damp, &c.," by pipes, in the last number of the *Pharmaceutical Journal*—differing in no respect, that I can see, from that which I had already proposed in my "Communications on Coal Mines." A right system of ventilation is, no doubt, a powerful auxiliary, and would greatly promote the full efficiency of Mr. Ryan's plan, which by no means excludes its aid. The subject of ventilation reminds me of a fact, not generally known—I believe that Mr. James Ryan, as early as 1815, introduced in the Queen's Lying-in-Hospital, at Paddington, and under the personal

approval of the late Duke of Sussex, the very elements of ventilation, for which Dr. Boswell Reid has since obtained so much credit. Once for all, I have no favouritism in my lucubrations, save the favouritism of fact—and recognise no altar, suited to my oblation, save the shrine of TRUTH. Portland-place, Hull, Dec. 9. J. MURRAY.

CHLORINE.

Sir,—When we consider the high specific gravity of chlorine (four times that of oxygen gas), its colour, general and powerful affinities, &c., analogy pleads strongly in favour of its being a compound. On the other hand, by all the canons of inductive reasoning, we are not warranted to consider any substance a compound, when it has resisted all the means employed for its decomposition. It may, or may not, be eventually, by more rigorous and refined manipulation, resolved into other elements, and confess its true form and condition; but, in the meantime, it must take its place among simple substances. The question was very rigidly tested, on opposite sides, by Sir Humphry Davy, and the late Dr. John Murray, of Edinburgh. The vantage ground remained with the former, and it has been recognised as simple ever since. The French chemists were the last to abandon the *gaz muriatique oxygéné*. Scheele, its eminent discoverer, clearly considered it simple. Perfectly desiccated "common salt" is considered a chloride of sodium; but, when crystallised, &c., a muriate, or hydro-chloride of soda. If, by the action on chlorine of sodium, of anhydrous sulphuric acid—such as the "fuming sulphuric acid of Nordhausen"—chlorine alone can be obtained, without a trace of hydro-chloric gas, which I apprehend would be the case—the question, so far, is at an end.

Metallic chlorides, as those of antimony, tin, &c., can only be maintained as such, dry,—for, as soon as they are brought in contact with water, the water is decomposed; and, by the appropriation of its chemical elements, they are promptly converted into hydro-chlorides, or muriates. When muriatic acid (hydro-chloric acid) is mixed with peroxide of manganese, a gentle temperature suffices to evolve chlorine. Now, the products here, are the nascent gas and watery vapour—the latter being formed by the combination of the hydrogen of the hydro-chloric gas, and a definite portion of the oxygen of the peroxide of manganese. The affinity of chlorine for aqueous vapour, even during artificial light—and perhaps even, in a fractional degree, in utter darkness—is remarkably exemplified by dipping a piece of coloured calico in water—say, one-fourth of its extent—and introducing it into chlorine: the wet portion alone will have its colour instantly discharged, while the remainder will remain intact. Most assuredly, equivalents of hydrogen and chlorine may be ignited, with explosion, by the electric spark, or contact of flame, and resolved into hydro-chloric or muriatic gas. A ray of light will do the same. J. MURRAY.

Portland-place, Hull, Dec. 15.

IS CHLORINE A SIMPLE SUBSTANCE?

Sir,—In answer to the "scientific paradox" of "Chemicus," in your last Journal—Is chlorine a simple substance?—I cannot conceive that a person, who could sign himself "Chemicus," could be so far behind hand in that science which he professes to study; and all he brings forward in his paradox does not at all prove chlorine not to be a simple substance. The only question he raises is as to the different names given to common salt. The first given to it in chemistry was muriate, soda, &c.; at that time it was supposed to be a combination of muriatic acid (a compound of one equivalent of chlorine with one of hydrogen), and soda (composed of one equivalent of sodium, and one equivalent of oxygen); but, as chemistry progressed, it was discovered that common salt contained only chlorine and sodium (one equivalent of each). As a proof of this, if sodium (the base of soda) is burnt in chlorine gas, common salt is the result; and in chemistry names are always given, which indicate the composition of the substance; the old names, muriate of soda and oxy-muriate of sodium, are now most properly discontinued, and chloride of sodium substituted, which at once shows to the chemist the composition of the salt. If your correspondent would look at the decomposition that ensues when sulphuric acid is poured upon common salt, all his doubts as to chlorine being a simple, or elementary, body must vanish.—T. M. L.: Battersea, Dec. 15.

IMPROVEMENTS ON THE STEAM-ENGINE.

Sir,—You are among those very few who have rendered me active service in the prosecution and realisation of principles, which, if true and useful, as I believe they are, would not have dishonoured others, had they rendered that more easy and less costly service, of giving their countenance, and thereby recommending the invention, so far as it is based on sound principles, and exemplified by tangible facts. For this, Sir, I give you my heartfelt thanks—a poor recompense, truly; but your kindness is, in my estimation, tenfold more valuable, because it has been prompted by no motive but to serve the cause of truth, and to advance practical science. We want more of this spirit abroad. We hear much at present of the bread monopoly, but other monopolies exist, which are less felt by the multitude—and, hence, less cared for—but, perhaps, in the long run, not much less hurtful; whilst they are certainly more triumphant, because their whole force is directed against individuals. The bread tax has always appeared to me amongst the most untenable. Next to the produce of our own soil, as a means of feeding our growing population, stands the steam-engine, with its attendant machinery. We want the Corn Laws repealed—because we hope thereby to get corn from America, and other corn-growing countries; but it is not expected that they will send it us for nothing. No; it will be obtained under the directing and controlling agency of our operatives, by the aid of the steam-engine, and our machinery. Perhaps, the quickest means—the most convincing argument that can be adduced—in answer to the traducers of machinery, would be an exact calculation of what our population could produce towards supplying their wants, even as at present. I have no doubt but a just investigation of this matter would show, that the steam-engines and machinery of this country are doing as much towards feeding and clothing the people, as half the land of England. If so, its traducers have as much claim to philanthropy and patriotism, as he who should propose to throw half the produce of the soil into the sea, in order that the people may be better fed;—whilst they who obstruct the further application of the elements to the service of man, act much the same part towards the human race, as one who would (if he could) blot out the new world. One of the greatest achievements of the steam-engine, in the service of humanity, is its bringing the different nations of the earth, with their varied climates, productions, manners, and customs, to act and re-act each upon the other—not only to the great improvement of their physical condition, but the expanding of their intellect, and the enlarging of their sympathies, until, at length, they will come to see, that it is not only a duty, but the highest good of each, to do good to all. Then will war be banished from the earth. If there is any one view of free trade more comprehensive, or delightful to contemplate, than another, it is this.

I fear I have wandered into a strain of thought not quite suited to your columns; yet, I think, we should not put asunder what the Creator joined together in his decree, that all great truths should converge to a point, and that—the happiness of his creatures. I take the causes that limit the application of the steam-engine, in this beneficent work, to be the following:—Weight and bulk of machinery, weight of fuel, and daily cost of power; that which militates against the comfort and security of passengers—the liability of explosions, together with heat and unpleasantness of smell. As soon shall I believe the Sun never shone, as that our present system does not induce all these serious limitations, in at least a two-fold degree, beyond what our already attained means would effect. That engines of one-fourth the weight would produce the same power, at half the cost in fuel, as those in present use, is what all the knowledge I have been able to gain by experiments, together with the soundest deductions from the well known properties we have on this subject to do with—backed by an amount of practical knowledge, derived from other sources, which leaves me to wonder how these already attained means should be refused; that tubular boilers, with pure water, may be substituted for the present magazines of explosive matter, ever equal to blow the vessel to atoms, whenever neglect, or an unforeseen cause, sets it instantly at liberty; that the boiler should be supplied with salt water, when the same distilled water, with other great advantages, be made to circulate from boiler to engine continually, whilst much of the heat, and unpleasant smell, consequent upon this cumbersome and prodigious system, may be avoided; that this system should be applauded,—whilst one, that is equal to remove its defects, should be denounced, and its author scarce find an individual to countenance his efforts—will, if I am not much mistaken, be considered, at no distant day, as strange a phenomenon of the human mind, in the nineteenth century, as that there should have been a law to exclude the poor man's bread.

I would not be understood to think lightly of any of the great renovators of the steam-engine. In reverence for minds, such as Watts', I will yield to no one, who, by his profound genius, with his creative imagination, which must have called up before his mind multitudes of disjointed and

incoherent conceptions—out of which, by the power of his intellect, he formed useful combinations; whilst, from the chaotic materials imagination gathered before his mental vision, he produced order and beauty. Minds of this order are not apt to be enslaved by envy and bigotry. This, in general, the lot of those who, having no such inherent brilliancy, are wont to shine in a borrowed light. T. CHADDOCK.

Broad-street, Birmingham, December 10.

ERRATA.—In my letter in your Journal of last week, seventh line from top should have been "80 or 100 lbs." &c., instead of "80 or 100 tons." &c. Again, twenty-third line from top, should have been "with more or less," instead of "will heat more or less."

THE GAUGE QUESTION.

A series of experimental trips were commenced on the Great Western Railway, on Tuesday last, under the direction of the government commission on the gauges, for the purpose of testing the tractive power, and of ascertaining the maximum speed attainable on the broad gauge, as compared with the narrow. The occasion was one of considerable scientific interest, and the experiments having, it is supposed, originated in a sort of challenge on the part of the advocates of the broad and narrow gauges, who have been battling so long for the palm of speed, and the supremacy of space. The idea of testing the relative powers of the traction and velocity attainable by the two systems at alternate periods on the Great Western and Birmingham, arose during the inquiry before the commissioners on the gauge question, Sir F. Smith and Professors Barlow and Airey, who have been sedulously employed throughout the recess in taking evidence *pro* and *con*, from the principal engineers and promoters of each system, with the view of either removing or mitigating the evils consequent on a diversity of gauge, and of ascertaining the effect of its present want of uniformity at important points upon the locomotion and commercial relations of the country. These evils, arising principally out of damage from transshipment and delay, are not to be underrated in their magnitude and effect, since the delay, as regards both commercial and military emergencies, is known to be very great, and tantamount to the crossing of a ferry. The subject assumes still greater importance when considered in relation to the proceedings in Parliament in the ensuing session, when so many lines, both arterial and lateral, will have to be adjudicated, connected with England, Ireland, and Scotland, completing the international route of the railway system, whose usefulness will mainly depend upon its simplicity and comprehensiveness as a whole. At present the narrow gauge has connected with it the major amount of the country's locomotion, the broad gauge being indigenous to the west, where it was first planned and planted by Brunel. The general conjecture appears to be that to the west the broad gauge will be confined, and that Rugby will be its boundary to the north, thus restricting it entirely to the geography of the west. The narrow gauge has at present territorial dominion of 1,667 miles, the broad of 278. The length of narrow gauge now constructing is 522 miles. The length of narrow gauge obtained during the last session was 2,886 miles, and for broad 455. It has been calculated that the narrow gauge district embraces a population of 11½ millions, and the broad of three millions, exclusive of the metropolis. The question as to how the gauges work commercially is the all-important point, and secondarily comes the question as to how they work at relative rates of velocity and speed. Mr. Bidder, one of the champions of the narrow gauge, asserted before the commission that the stamina and stout build of the Birmingham engines on the narrow or 4 foot 8½ inch gauge, were capable of accomplishing as much as the Goliath engines of the Great Western, running on its great gauge of 7 feet wide. This being disputed by Mr. Brunel and Mr. Gooch, the commissioners determined on an *experimentum crucis*, fixing yesterday for their trip on the Great Western, and deferring for a future day that on the Birmingham. It being impossible to run on parallel lines simultaneously, or, in other words, to make a railway race of it, it was resolved that trials of proportionate loads should be made on the respective lines, and it is understood that on the result sums of money are staked, and will undergo mutation from hand to hand. The route selected by the Great Western was probably on the best appointed portion of their line—namely, from Paddington to Didcot, the departure point for Oxford, a distance of fifty-three miles, consisting principally of surface line, but characterised by considerable curvatures. The London and Birmingham, it is understood, do not intend to select their own line, but some portion of the Manchester and Birmingham.

The first experimental train, consisting of eight carriages, six first-class, two second, all six wheels, with twenty-four passengers, and weighted to a gross load with iron to 81 tons, 13 cwt., exclusive of engine and tender, which may be taken at thirty-two tons more, and equal to a train of 342 persons, started from the first mile post beyond Paddington, at six minutes past ten, containing Sir Frederick Smith, K.C.B., Professor Barlow, Sir J. Burgoyne, K.C.B.; Major-General Pasley, inspector-general; Capt. O'Brien, secretary of the Board of Trade; Mr. William Watson, secretary of the gauge commission; Mr. Brunel, Mr. Gooch, Mr. Charles Saunders, Mr. Bidder, C.E., Mr. Gooch, C.E., Mr. W. Harding, C.E., Mr. Berkeley, Mr. Barlow, and several scientific gentlemen. The engine chosen was the *Iron*, with machinery of immense power. She was driven by Mr. Brunel and Mr. Gooch, with Mr. Bidder and Mr. Berkeley on the platform. As the engine was working itself into rapid action, so as to accomplish the given distance in a spell, a slight obstruction occurred after passing the first mile post, and at the junction point with the West London, which crosses, in consequence of a transverse train being in sight. The breaks had to be applied, but the time lost was not more than half a minute ere the steam was up again, and the speed recovered. A perceptible retardation of speed was occasioned by a high wind from the north-west, which of course beat upon the broad base of the engine and the breasts of the after carriages; and this on a glance may be gathered from the variable velocities indicated in the tabular collation below. Another probable cause may have been the difficulty the huge wheels had in coping with the curves, more particularly in the case of the carriages which are six-wheeled. Looking, however, at general results, and the minute observations made, the speed was remarkable and steady. The maximum on the first down trip being one mile in one minute and five seconds; the maximum on the up trip, seven miles in two minutes and sixty-two seconds, or at the rate of fifty-two miles in one hour, five minutes, and sixty-two seconds, with the given amount of tonnage. On arriving at Didcot, the party left the train, and corresponding weights were placed in the carriages in order to keep up the fixed tonnage. The return from Didcot was at eight minutes past twelve. At the second mile from the Paddington station breaks were put on, and the train reached the first mile post at one hour, and nine minutes, completing the fifty-two miles in one hour and forty minutes, or at the rate of fifty-one miles an hour. The second trip from Paddington to Didcot, with seventy tons, was accomplished in sixty-four minutes, and up, with wind in its favour, in fifty-five minutes.

The experimental runs were renewed on Wednesday. The three commissioners, Sir F. Smith, K.C.B., Professor Barlow, and Professor Airey, accompanied the trips; and Professor Airey mounted the engine on the up journey. The maximum speed on the down trip was exactly one mile per minute; and the maximum of that on the return was sixty-two miles per hour. The down train, upon leaving the Sunning-hill cutting, was doing fifty-nine miles per hour; but such was the greasy state of the rails, that they were obliged to reduce the power of the engine to prevent the wheels slipping, and this reduced power was continued for about ten miles. The twenty-two miles between the 11th and 38d mile posts were done in 22 min. 33 sec.; and it was at this point of the journey, and when everybody was expecting a most extraordinary result, that the wheels began to slip, in consequence of the rails being in a bad state, arising from the drizzling rain. The *Iron* was again in requisition, the only difference being that the experiment was with six carriages instead of ten, and with sixty tons instead of eighty. The following are the mean practical results tabulated for the two days, from which it will be seen that the first day's down trip, with eighty tons, was accomplished in 1 hour 4 min.; the second day's down trip in 1 hour 2½ min. The first day's up trip was accomplished in 1 hour 1½ min.; and the second day's up trip in about 59 min.; the disparity being accounted for by the inequality, on each occasion, of the gross weights, independent of the unfavourable effect of weather.

		FIRST DAY'S TRIP.*		SECOND DAY'S TRIP.†	
Miles.	Stations.	Down.	Up.	Down.	Up.
Started from Paddington	9A 58m	10A 2m	10A 4m	10A 4m	10A 4m
Reached first mile post	10 24	10 24	10 24	10 24	10 24
West London Crossing	10 40	10 40	10 40	10 40	10 40
54	Ealing	10 11	10 19	10 14	10 16
74	Hanwell	10 13	10 37	10 16	10 54
9	Southall	10 14	10 59	10 17	10 59
13	West Drayton	10 30	10 50	10 22	10 47
18	Slough	10 32	10 44	10 27	10 48
22½	Maidenhead	10 30	10 40	10 35	10 38
30½	Twyford	10 40	10 31	10 40	10 29
35½	Reading	10 46	10 26	10 46	10 24
41½	Pangbourne	10 52	10 20	10 52	10 20
44½	Goring	10 56	10 16	10 56	10 15
47½	Wallingford-road	11 0	10 13	10 59	10 14
53	Didcot	11 0	10 12	11 0	10 12
Total time on road		1 4	1 12	1 24	0 59

* Eight carriages, of 10 tons each, 80 tons gross weight, exclusive of engine and tender (32).

† With six carriages, and gross weight 60 tons, exclusive of engine and tender (32).

RICHMOND RAILWAY.—The works from the South-Western to Richmond are being carried on with great activity, and it is anticipated that the line will be opened for public traffic by the 1st of May, the date originally appointed. With the exception of the brickwork in forming bridges, culverts, viaducts, &c., the line is almost formed. The earthworks are near completion, and in many parts the sleepers and rails are laid. The works adjacent to the river Wandse contained some damage on Thursday last by the flooding of the Thames, but they have not been stopped. It is expected that the capital raised for the formation of the line, viz., 360,000l., will more than cover its cost.

